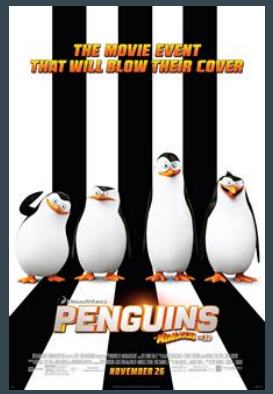
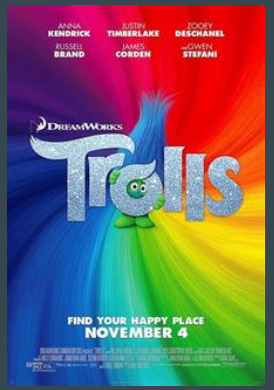
HTCondor at

Collin Mehring

Using HTCondor Since 2011





Animation Studio Background

- Productions are our customers
  - Artists are the end users
- Production stages and their teams
  - Layout -> Animation -> Lighting / FX -> Finaling
- The production hierarchy - Production -> Sequence -> Shot -> Frames
  - Frames are composed of many steps composited together
  - Each frame has a left- and right-eye version for 3D effect
  - ~260k frames in a movie
- Support many different applications
- Hard deadlines
  - Leads to large amounts of work during crunch time

Who interacts with HTCondor and how?

- Artists
  - Submit to the farm and expect frames back
  - Focus on the art, no technical knowledge of HTCondor required
- Technical Directors
  - Configure artists' software to use submission tools
  - Debug issues on the shot setup side
- TRAs (Technical Resource Admins / Render Wranglers)
  - Mange the HTCondor farm jobs
  - Answer artists' questions about the farm, and provide help
- JoSE (Job Submission and Execution, R&D team)
  - Configure HTCondor
  - Develop and maintain tools to help the TRAs manage the farm
  - Developing submission tools

Why do we configure HTCondor the way we do?

- End users shouldn’t require any technical knowledge of the scheduling system
  - Available settings should be things they care about, everything else is automatic
- The scheduling system should not noticeably impact the end users
- Admins should be able to easily manage large amounts of jobs
- Admins should have easy access to all relevant information and statistics
  - Easier troubleshooting, helps establish causation, and present information to productions
- Prioritize throughput, but consider turnaround time as well
  - Minimize wasted compute hours
  - New renderer scales very well with cores, prioritize scheduling large jobs
- Accounting groups should always get their minimum allocation
- Help productions meet deadlines anyway possible

How do we have HTCondor configured?

- All DAG jobs
  - Many steps involved in rendering a frame
- GroupId.NodeId.JobId instead of ClusterId
  - Easier communication between departments
- No preemption (yet)
  - Deadlines are important - No lost work
  - Checkpointing coming soon in new renderer
- Heavy use of group accounting
  - Render Units (RU), the scaled core-hour
  - Productions pay for their share of the farm
- Execution host configuration profiles
  - e.g. Desktops only run jobs at night
  - Easy deployment and profile switching
- Load data from JobLog/Spool files into Postgres, Influx, and analytics databases

Quick Facts

- Central Manager and backup (HA)
  - On separate physical servers
- One Schedd per show, scaling up to ten
  - Split across two physical servers
- About 1400 execution hosts
  - ~45k server cores, ~15k desktop cores
  - Almost all partitionable slots
- Complete an average of 160k jobs daily
- An average frame takes 1200 core hours over its lifecycle
- Trolls took ~60 million core-hours

What additional configuration have we added?

- Lots of additional ClassAd attributes (~50)
- Concurrency limits
  - Each group has their own limit
  - Software limits can be per host, and can be released early
- Error & Production Error status
  - Differentiating between held and errored jobs
- Subway - Python submission API
  - In terms of studio specific constructs
  - Deferred submissions, v4 provides a REST API
- Job Policy
  - Predefined templates of several job attributes
- Heavy use of pre- and post-priorities

How do we manage our HTCondor pool?

The Farm Manager (WebApp)

- GUI for managing the HTCondor pool
  - Used by TRAs, TDs, Artists, etc.
- See specific details
  - Group progress
  - Job stats and information
    - Logs, charts, etc.
  - Finished and Canceled jobs
- Perform actions on jobs
  - Supports batched actions on nodes & groups
  - Can modify jobs that haven’t been submitted yet by the DAG
- Filter your view
  - Only see the groups relevant to you
- Hides most low-level HTCondor data
  - ClassAds, DAGs, SDFs, etc.
- Allocate resources between shares
  - Separate allocations for day and night
- Monitor execution hosts
  - Data and charts, just like jobs
- Links to other monitoring tools

View: **All Groups** Last 24 hours

	Groups	Jobs	Pending	Ready	Running	Done	Error	Prod Error	Exit	Suspen…	Hold	Total CPUs	In Use CPUs	Usage
View	4212	474834	61525	18270	1766	345374	662	1699	63778	0	30	41304	36846	89.21%
Filtered														

Menu

Filters

All | Non prod | High Prio | Error | Alerts | Over Mem | Long Running | Low CPU | Near Limit | RQS | RQS Night | Wait | Hold | DAG | Houdini | +

Quick Filter | Goto Group | Auto Refresh: | Last Fetch: 16:58:58

Group Id	Mgd	User	Team	Status	Prio	Prod-Seq-Shot	Progress Bar	Pend	Ready	Run	Clim	Hold	Err	Pe	Done	Ttl	Latest Note
118261599		espringer	anim	Done	200	trolls2-sqliving_vdev-sbarb	(10 / 10)	0	0	0	120	0	0	0	10	10	
118261596		cim	fargo	Pend	200	dragon3-sq251-s3	8% - (3 / 36)	33	31	0	40	0	0	0	3	36	
118261597		cim	fargo	Pend	201	dragon3-sq251-s11	7% - (2 / 28)	26	24	0	40	0	0	0	2	28	
118261598		cim	fargo	Run	150	dragon3-sq251-s5	44% - (24 / 54)	9	7	21	40	0	0	0	24	54	
118261594		otakehiro	skyfall	Hold	55	dragon3-sq101-s22	95% - (190 / 198)	5	0	2	100	1	0	0	190	198	
118261593		corpsuser	misc	Prod Error	200	show-nosequence-noshot	25% - (1 / 4)	2	0	0	120	0	0	1	1	4	
118261592		corpsuser	misc	Prod Error	200	show-nosequence-noshot	25% - (1 / 4)	2	0	0	120	0	0	1	1	4	
118261591		llee	fx	Done	200	dragon3-sq3501-s13	(271 / 271)	0	0	0	120	0	0	0	271	271	
118261590		achisholm	blade_runner	Cancel	100	dragon3-sq2301-s6.5	(7 / 28)	0	0	0	120	0	0	0	7	28	Canceled by achisholm
118261589		corr	blade_runner	Run	75	dragon3-sq201-s28	89% - (71 / 79)	5	0	3	40	0	0	0	71	79	
118261588		wsokoloski	cfx	Pend	200	dragon3-sq351-s29	46% - (29 / 63)	34	26	0	40	0	0	0	29	63	
118261587		jwesche	rlo	Done	200	dragon3-sq221-s46	(5 / 5)	0	0	0	120	0	0	0	5	5	
118261586		apaz	cfx	Pend	200	dragon3-sq2195-s7	25% - (9 / 36)	27	22	0	40	0	0	0	9	36	
118261585		rpena	skyfall	Run	152	dragon3-sq101-s47	86% - (31 / 36)	4	0	1	40	0	0	0	31	36	
118261584		jzimmer	cfx	Run	200	dragon3-sq351-s8	41% - (15 / 36)	19	14	2	40	0	0	0	15	36	
118261583		rahuja	misc	Cancel	200	trolls2-sqtest-susd_render_simple	(0 / 6)	0	0	0	120	0	0	0	0	6	Canceled by rahuja
118261582		jenkins	handoff	Done	200	trolls2-sqservice-shandoff_trigger_s…	(2 / 2)	0	0	0	120	0	0	0	2	2	
118261580		jenkins	handoff	Done	200	trolls2-sqservice-shandoff_trigger_s…	(2 / 2)	0	0	0	120	0	0	0	2	2	
118261581		jenkins	handoff	Done	200	trolls2-sqservice-shandoff_trigger_s…	(2 / 2)	0	0	0	120	0	0	0	2	2	
118261579		rparekh	blade_runner	Cancel	80	dragon3-sq201-s46	(2 / 78)	0	0	0	120	0	0	0	2	78	Canceled by rparekh
118261577		achisholm	blade_runner	Cancel	200	dragon3-sq2301-s6.5	(2 / 52)	0	0	0	120	0	0	0	2	52	Canceled by achisholm
118261578		chels	rlo	Cancel	200	dragon3-sq2151-spreviz	(1 / 5)	0	0	0	120	0	0	0	1	5	oops
118261576		ftarzi	skyfall	Done	200	dragon3-sq101-s39	(17 / 17)	0	0	0	120	0	0	0	17	17	
118261575		mscott	blade_runner	Run	25	dragon3-sq201-s7	16% - (70 / 425)	315	173	40	40	0	0	0	70	425	
118261574		jenkins	handoff	Run	200	everest-sqservice-shandoff_trigger_…	(0 / 2)	1	0	1	120	0	0	0	0	2	
4212								61525	18270	1766		30			345374	474834	

Utilization Summary

Share	Alloc Slots	Slots	RUs	Alloc RUs	Usage
dragon3_sicario	2516	6384	6577.9	4025	163.4%
dragon3_dwa_logo	3125	4800	4957.1	5000	99.1%
dragon3_skyfall	1797	4274	4443.9	2875	154.6%
dragon3_blade_ru…	1438	3940	4041.4	2300	175.7%
dragon3_fargo	1438	3652	3768.5	2300	163.8%
dragon3_train	1068	2786	2838.2	1709	166.1%
dragon3_fx	2080	2651	2612.3	3328	78.5%
dragon3_flo	875	2160	2223.8	1400	158.8%
dragon3_hi	0	1692	1787.9	0	
	856	1550	1512.5	1370	110.4%

Prod	Alloc Slots	Slots	Alloc R…	RUs	Ready	Usage
dragon3	17500	36122	28000	37024.3	15154	132.2%
everest	2500	537	4000	523.1	2544	13.1%
trolls2	625	19	1000	18.6	44	1.9%
btr	119	0	190	0.0	0	0%
zeus	63	0	100	0.0	0	0%
shorts	31	0	50	0.0	0	0%
common	0	0	0	0.0	0	
lar	0	0	0	0.0	0	
te1	0	0	0	0.0	0	

Farm Operations

Events & Notes

Events

Date	User	Event
05/16/18 16:12:27	jgeorge	migr…
05/16/18 16:12:27	jgeorge	set
05/16/18 16:18:47	jgeorge	retri…
05/16/18 16:23:02	jgeorge	retri…

Notes

Date	User	Note

No Notes Found

Add Note

Selection Console

View:
Active Groups

	Groups	Jobs	Pending	Ready	Running	Done	Error	Prod Error	Exit	Suspen…	Hold	Total CPUs	In Use CPUs	Usage
View	228	67915	34857	10517	2546	29708	349	154	98	0	203	39224	37330	95.17%
Filtered	12	10278	5347	1189	306	4575	0	0	50	0	0			

Menu

Filters

Save Filters
Alerts Save

Add New Filter
% Add

Alerts

- Gross Over Mem:
- Near Limit:
- Held Dag:
- Held Dep:
- Low CPU:
- Over Mem:
- Long Running:
- Old Long Running:

User

Match: Any
Match Case:
Not Equal:
Content: proddev

User

Match: Any

Selection Console

Space Group
118202535

All | Non prod | High Prio | Error | Alerts | Over Mem | Long Running | Low CPU | Near Limit | RQS | RQS Night | Wait | Hold | DAG | Houdini | +

Quick Filter Goto Group

Auto Refresh: Last Fetch: 14:23:02

Group Id	Mgd	User	Team	Status	Prio	Prod-Seq-Shot	Progress Bar	Pend	Ready	Run	Clim	Hold	Err	Pe	Done	Ttl	Late
118207761		tjjackson	flo	Run	201	dragon3-sq1851-s21	93% - (170 / 181)	9	5	2	40	0	0	0	170	181	
118207783		tjjackson	flo	Run	201	dragon3-sq1801-s14.1	79% - (614 / 773)	135	109	24	40	0	0	0	614	773	
118208689		bvenancie	sicario	Run	180	dragon3-sq211-s8	34% - (358 / 1033)	594	488	81	80	0	0	0	358	1033	
118209114		jnichols	skyfall	Run	300	dragon3-sq1001-s3	87% - (305 / 348)	22	0	21	40	0	0	0	305	348	
118209162		atimchenko	fx	Run	150	dragon3-sq201-s1	73% - (496 / 675)	121	60	9	40	0	0	0	496	675	
118209272		plebrun	anim	Hold	200	dragon3-sq101-s47	(0 / 45)	45	0	0	120	0	0	0	0	45	
118208606		oustundag	dwa_logo	Run	200	dragon3-sqgap_logo-s2	39% - (2568 / 6584)	3898	504	118	120	0	0	0	2568	6584	met
118209736		atimchenko	fx	Run	125	dragon3-sq201-s1	25% - (4 / 16)	2	0	10	40	0	0	0	4	16	
118210193		udai	team1	Run	18	dragon3-sq8000-s93	30% - (46 / 149)	62	23	40	40	0	0	0	46	149	
118210265		mlosure	fx	Run	200	dragon3-sq2001-s35	87% - (14 / 16)	1	0	1	40	0	0	0	14	16	
118210282		dwong	crowd	Hold	200	dragon3-sq1001-s6	(0 / 133)	133	0	0	120	0	0	0	0	133	
118210341		mamos	anim	Hold	200	dragon3-sq201-s12	(0 / 325)	325	0	0	40	0	0	0	0	325	

12 5347 1189 306 0 0 0 4575 10278

Utilization Summary

Share	Alloc Slots	Slots	Alloc RUs	RUs	Ready	Usage
dragon3_anim	1063	6300	1700	6661.3	1058	391.8%
dragon3_sicario	1000	6192	1600	6409.2	2839	400.6%
dragon3_fx	1062	4888	1699	4737.7	2551	278.9%
dragon3_team1	3438	4038	5501	4147.6	44	75.4%
dragon3_flo	625	2803	1000	2922.0	1380	292.2%
dragon3_hi	0	1012	0	2003.2	0	
dragon3_crowd	625	1463	1000	1440.2	67	144%

Prod	RUs	Alloc RUs	Alloc Slots	Usage
dragon3	39411.1	20000	12500	197.1%

Farm Operations

Events & Notes

Events

Date	User	Event

Notes

Date	User	Note

No Notes Found

Add Note

Group Id	User	Share	Iter	Prio	Prod-Seq-Shot	Progress Bar	DAG Status	Site	Submit Time	Clim	Usage	Schedd	Label	Dag Id
118207783	tjjackson	dragon3_flo	1	201	dragon3-sq1801-s14.1	80% - (622 / 773)	RUN	GLD	04/19/18 03:02:27	40	81:11:57	dragon3-1@		1682004

Menu

Filters

Save Filters

Save

Add New Filter

Alert Add

Selection Console

Space Id

118207783.3

Nodes | All | Alerts | Errors | Multi Cpu | Running | +

Job Id	Node	Status	Progress Bar	Max Elapsed	Avg Elapsed	Max PSS	Ready	Run	Done	Error	Prod…	H
1[0-0]	usd_render-flo_usd-start	Done	(1 / 1)	00:16:29 (0)	00:16:29	15.5 (0)	0	0	1	0	0	0
2[101-485]	usd_render-flo_usd-all-work	Run	94% - (365 / 385)	01:00:05 (319)	00:12:26	38.1 (451)	0	20	365	0	0	0
3[101-485]	usd_render-flo_usd-comp	Run	66% - (256 / 385)	00:00:52 (365)	00:00:11	0.5 (305)	106	2	256	0	0	0
4[0-0]	usd_render-flo_usd-end	Pend	(0 / 1)			0 (0)	0	0	0	0	0	0
5[0-0]	post_render	Pend	(0 / 1)			0 (0)	0	0	0	0	0	0
Totals	Num Nodes: 5						106	22	622	0	0	0

Quick Filter Goto Group

Job Id	Cluster Id	State	Try	Elapsed	CPU Time	Est Runti…	Min…	Max …	CPUs	CPU Eff	Rsrv	PSS	RU …	Share	Policy	Host	Auto …	Start
3.346	1772874	DONE	1	00:00:22	00:00:13	00:05:00	32	32	32	59.1%	1	0.1	0.2	dragon3_flo	default	ih0009.las…		04/
3.347	1772817	DONE	1	00:00:26	00:00:13	00:05:00	32	32	32	50.0%	1	0	0.3	dragon3_flo	default	ih0009.las…		04/
3.348	1772812	DONE	1	00:00:12	00:00:08	00:05:00	32	32	32	66.7%	1	0	0.1	dragon3_flo	default	iv0058.gld…		04/
3.349	1772738	DONE	1	00:00:24	00:00:10	00:05:00	32	32	32	41.7%	1	0.2	0.2	dragon3_flo	default	ih0029.las…		04/
3.350	1772816	DONE	1	00:00:23	00:00:10	00:05:00	32	32	32	43.5%	1	0.2	0.2	dragon3_flo	default	ih0029.las…		04/
3.351	1772821	DONE	1	00:00:17	00:00:08	00:05:00	32	32	32	47.1%	1	0	0.2	dragon3_flo	default	ih0029.las…		04/
3.352	1772913	READY				00:05:00	32	32			1	0		dragon3_flo	default			
3.353	1772849	DONE	1	00:00:32	00:00:13	00:05:00	32	32	32	40.6%	1	0.4	0.3	dragon3_flo	default	ih0009.las…		04/
3.354	1773296	READY				00:05:00	32	32			1	0		dragon3_flo	default			
3.355	1772884	DONE	1	00:00:16	00:00:08	00:05:00	32	32	32	50.0%	1	0.2	0.2	dragon3_flo	default	ih0029.las…		04/
3.356	1772896	RUN	1	00:00:18		00:05:00	32	32	32	0.0%	1	0	0.2	dragon3_flo	default	ih0009.las…		04/
3.357	1772984	READY				00:05:00	32	32			1	0		dragon3_flo	default			
3.358	1773042	READY				00:05:00	32	32			1	0		dragon3_flo	default			
3.359	1772904	READY				00:05:00	32	32			1	0		dragon3_flo	default			
3.360	1773142	READY				00:05:00	32	32			1	0		dragon3_flo	default			
3.361	1772914	READY				00:05:00	32	32			1	0		dragon3_flo	default			
3.362	1772922	READY				00:05:00	32	32			1	0		dragon3_flo	default			
3.363	1772912	READY				00:05:00	32	32			1	0		dragon3_flo	default			
3.364	1772873	DONE	1	00:00:21	00:00:07	00:05:00	32	32	32	33.3%	1	0.2	0.2	dragon3_flo	default	ih0029.las…		04/
3.365	1772894	DONE	1	00:00:52	00:00:16	00:05:00	32	32	32	30.8%	1	0.2	0.5	dragon3_flo	default	ih0009.las…		04/
3.366	1772895	DONE	1	00:00:25	00:00:10	00:05:00	32	32	32	40.0%	1	0.2	0.3	dragon3_flo	default	ih0029.las…		04/
3.367	1773130	READY				00:05:00	32	32			1	0		dragon3_flo	default			
3.368	1773143	READY				00:05:00	32	32			1	0		dragon3_flo	default			
3.369	1773038	READY				00:05:00	32	32			1	0		dragon3_flo	default			
3.370	1772903	RUN	1	00:00:16		00:05:00	32	32	32	0.0%	1	0	0.2	dragon3_flo	default	ih0029.las…		04/
3.371	1772926	READY				00:05:00	32	32			1	0		dragon3_flo	default			
3.372	1773044	READY				00:05:00	32	32			1	0		dragon3_flo	default			
3.373	1773182	READY				00:05:00	32	32			1	0		dragon3_flo	default			
3.374	1772893	DONE	1	00:00:29	00:00:10	00:05:00	32	32	32	34.5%	1	0	0.3	dragon3_flo	default	ih0029.las…		04/
3.375	1773107	READY				00:05:00	32	32			1	0		dragon3_flo	default			
3.376	1773167	READY				00:05:00	32	32			1	0		dragon3_flo	default			
3.377	1772902	DONE	1	00:00:37	00:00:09	00:05:00	32	32	32	24.3%	1	0	0.4	dragon3_flo	default	ih0029.las…		04/

Events & Notes

Events

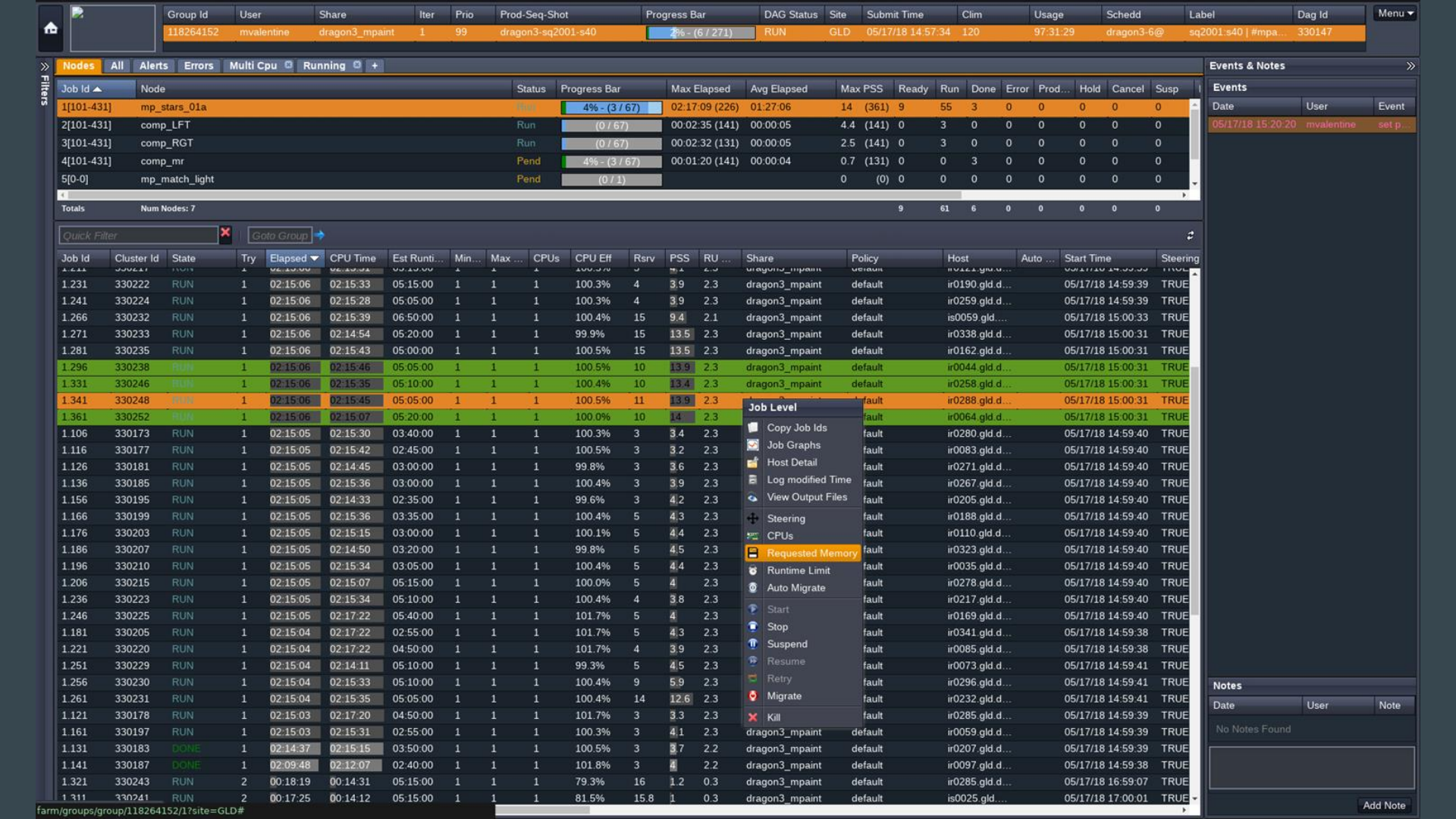
Date	User	Event
04/19/18 14:43:59	jgeorge	migr…
04/19/18 14:43:59	jgeorge	set…
04/20/18 13:00:20	kmouriz	retri…
04/20/18 13:20:57	rtisoy	migr…
04/20/18 13:20:57	rtisoy	set…
04/20/18 13:21:12	kmouriz	migr…
04/20/18 13:21:12	kmouriz	set…

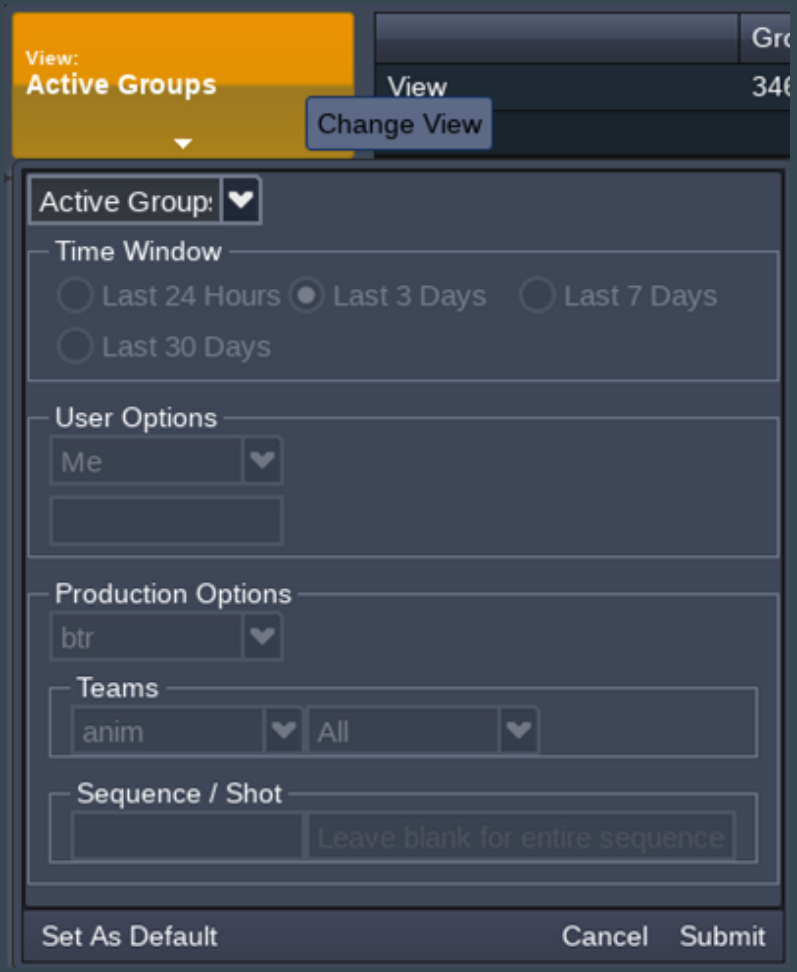
Notes

Date	User	Note

No Notes Found

Add Note


Group Id
User
Share
Iter
Prio
Prod-Seq-Shot
Progress Bar
DAG Status
Site
Submit Time
Clim
Usage
Schedd
Label
Dag Id
Menu
118264152
mvalentine
dragon3_mpaint
1
99
dragon3-sq2001-s40
2% - (6 / 271)
RUN
GLD
05/17/18 14:57:34
120
97:31:29
dragon3-6@
sq2001:s40 | #mpa...
330147
Filters
Nodes
All
Alerts
Errors
Multi Cpu
Running
+
Job Id
Node
Status
Progress Bar
Max Elapsed
Avg Elapsed
Max PSS
Ready
Run
Done
Error
Prod...
Hold
Cancel
Susp
1[101-431]
mp_stars_01a
Run
4% - (3 / 67)
02:17:09 (226)
01:27:06
14 (361)
9
55
3
0
0
0
0
0
2[101-431]
comp_LFT
Run
(0 / 67)
00:02:35 (141)
00:00:05
4.4 (141)
0
3
0
0
0
0
0
0
3[101-431]
comp_RGT
Run
(0 / 67)
00:02:32 (131)
00:00:05
2.5 (141)
0
3
0
0
0
0
0
0
4[101-431]
comp_mr
Pend
4% - (3 / 67)
00:01:20 (141)
00:00:04
0.7 (131)
0
0
3
0
0
0
0
0
5[0-0]
mp_match_light
Pend
(0 / 1)
0 (0)
0
0
0
0
0
0
0
0
Totals
Num Nodes: 7
9
61
6
0
0
0
0
0
Quick Filter
Goto Group
Job Id
Cluster Id
State
Try
Elapsed
CPU Time
Est Runti...
Min...
Max ...
CPUs
CPU Eff
Rsrv
PSS
RU ...
Share
Policy
Host
Auto ...
Start Time
Steering
1.231 330222 RUN 1 02:15:06 02:15:33 05:15:00 1 1 1 100.3% 4 3.9 2.3 dragon3_mpaint default ir0190.gld.d... 05/17/18 14:59:39 TRUE
1.241 330224 RUN 1 02:15:06 02:15:28 05:05:00 1 1 1 100.3% 4 3.9 2.3 dragon3_mpaint default ir0259.gld.d... 05/17/18 14:59:39 TRUE
1.266 330232 RUN 1 02:15:06 02:15:39 06:50:00 1 1 1 100.4% 15 9.4 2.1 dragon3_mpaint default is0059.gld.... 05/17/18 15:00:33 TRUE
1.271 330233 RUN 1 02:15:06 02:14:54 05:20:00 1 1 1 99.9% 15 13.5 2.3 dragon3_mpaint default ir0338.gld.d... 05/17/18 15:00:31 TRUE
1.281 330235 RUN 1 02:15:06 02:15:43 05:00:00 1 1 1 100.5% 15 13.5 2.3 dragon3_mpaint default ir0162.gld.d... 05/17/18 15:00:31 TRUE
1.296 330238 RUN 1 02:15:06 02:15:46 05:05:00 1 1 1 100.5% 10 13.9 2.3 dragon3_mpaint default ir0044.gld.d... 05/17/18 15:00:31 TRUE
1.331 330246 RUN 1 02:15:06 02:15:35 05:10:00 1 1 1 100.4% 10 13.4 2.3 dragon3_mpaint default ir0258.gld.d... 05/17/18 15:00:31 TRUE
1.341 330248 RUN 1 02:15:06 02:15:45 05:05:00 1 1 1 100.5% 11 13.9 2.3 default ir0288.gld.d... 05/17/18 15:00:31 TRUE
1.361 330252 RUN 1 02:15:06 02:15:07 05:20:00 1 1 1 100.0% 10 14 2.3 default ir0064.gld.d... 05/17/18 15:00:31 TRUE
1.106 330173 RUN 1 02:15:05 02:15:30 03:40:00 1 1 1 100.3% 3 3.4 2.3 default ir0280.gld.d... 05/17/18 14:59:40 TRUE
1.116 330177 RUN 1 02:15:05 02:15:42 02:45:00 1 1 1 100.5% 3 3.2 2.3 default ir0083.gld.d... 05/17/18 14:59:40 TRUE
1.126 330181 RUN 1 02:15:05 02:14:45 03:00:00 1 1 1 99.8% 3 3.6 2.3 default ir0271.gld.d... 05/17/18 14:59:40 TRUE
1.136 330185 RUN 1 02:15:05 02:15:36 03:00:00 1 1 1 100.4% 3 3.9 2.3 default ir0267.gld.d... 05/17/18 14:59:40 TRUE
1.156 330195 RUN 1 02:15:05 02:14:33 02:35:00 1 1 1 99.6% 3 4.2 2.3 default ir0205.gld.d... 05/17/18 14:59:40 TRUE
1.166 330199 RUN 1 02:15:05 02:15:36 03:35:00 1 1 1 100.4% 5 4.3 2.3 default ir0188.gld.d... 05/17/18 14:59:40 TRUE
1.176 330203 RUN 1 02:15:05 02:15:15 03:00:00 1 1 1 100.1% 5 4.4 2.3 default ir0110.gld.d... 05/17/18 14:59:40 TRUE
1.186 330207 RUN 1 02:15:05 02:14:50 03:20:00 1 1 1 99.8% 5 4.5 2.3 default ir0323.gld.d... 05/17/18 14:59:40 TRUE
1.196 330210 RUN 1 02:15:05 02:15:34 03:05:00 1 1 1 100.4% 5 4.4 2.3 default ir0035.gld.d... 05/17/18 14:59:40 TRUE
1.206 330215 RUN 1 02:15:05 02:15:07 05:15:00 1 1 1 100.0% 5 4 2.3 default ir0278.gld.d... 05/17/18 14:59:40 TRUE
1.236 330223 RUN 1 02:15:05 02:15:34 05:10:00 1 1 1 100.4% 4 3.8 2.3 default ir0217.gld.d... 05/17/18 14:59:40 TRUE
1.246 330225 RUN 1 02:15:05 02:17:22 05:40:00 1 1 1 101.7% 5 4 2.3 default ir0169.gld.d... 05/17/18 14:59:40 TRUE
1.181 330205 RUN 1 02:15:04 02:17:22 02:55:00 1 1 1 101.7% 5 4.3 2.3 default ir0341.gld.d... 05/17/18 14:59:38 TRUE
1.221 330220 RUN 1 02:15:04 02:17:22 04:50:00 1 1 1 101.7% 4 3.9 2.3 default ir0085.gld.d... 05/17/18 14:59:38 TRUE
1.251 330229 RUN 1 02:15:04 02:14:11 05:10:00 1 1 1 99.3% 5 4.5 2.3 default ir0073.gld.d... 05/17/18 14:59:41 TRUE
1.256 330230 RUN 1 02:15:04 02:15:33 05:10:00 1 1 1 100.4% 9 5.9 2.3 default ir0296.gld.d... 05/17/18 14:59:41 TRUE
1.261 330231 RUN 1 02:15:04 02:15:35 05:05:00 1 1 1 100.4% 14 12.6 2.3 default ir0232.gld.d... 05/17/18 14:59:41 TRUE
1.121 330178 RUN 1 02:15:03 02:17:20 04:50:00 1 1 1 101.7% 3 3.3 2.3 default ir0285.gld.d... 05/17/18 14:59:39 TRUE
1.161 330197 RUN 1 02:15:03 02:15:31 02:55:00 1 1 1 100.3% 3 4.1 2.3 dragon3_mpaint default ir0059.gld.d... 05/17/18 14:59:39 TRUE
1.131 330183 DONE 1 02:14:37 02:15:15 03:50:00 1 1 1 100.5% 3 3.7 2.2 dragon3_mpaint default ir0207.gld.d... 05/17/18 14:59:39 TRUE
1.141 330187 DONE 1 02:09:48 02:12:07 02:40:00 1 1 1 101.8% 3 4 2.2 dragon3_mpaint default ir0097.gld.d... 05/17/18 14:59:38 TRUE
1.321 330243 RUN 2 00:18:19 00:14:31 05:15:00 1 1 1 79.3% 16 1.2 0.3 dragon3_mpaint default ir0285.gld.d... 05/17/18 16:59:07 TRUE
1.311 330241 RUN 2 00:17:25 00:14:12 05:15:00 1 1 1 81.5% 15.8 1 0.3 dragon3_mpaint default is0025.gld.... 05/17/18 17:00:01 TRUE
Job Level
Copy Job Ids
Job Graphs
Host Detail
Log modified Time
View Output Files
Steering
CPUs
Requested Memory
Runtime Limit
Auto Migrate
Start
Stop
Suspend
Resume
Retry
Migrate
Kill
Events & Notes
Events
Date
User
Event
05/17/18 15:20:20
mvalentine
set p...
Notes
Date
User
Note
No Notes Found
Add Note
farm/groups/group/118264152/1?site=GLD#



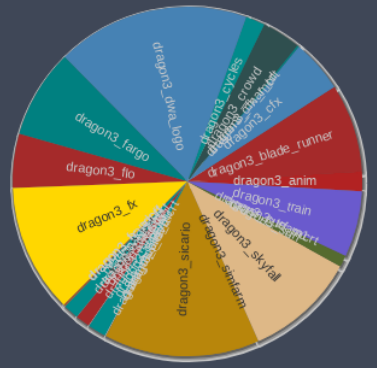
Allocation Manager

Production: dragon3 | Edit Allocations | Total RU: 28000 | Save

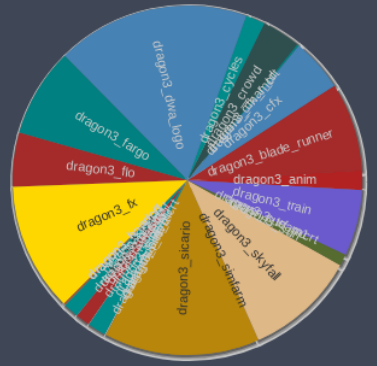
Name	Production	Batch Allo…	Day Alloc
dragon3_anim	dragon3	500	500
dragon3_blade_runner	dragon3	2300	2300
dragon3_cfx	dragon3	1370	1370
dragon3_cfx_mcrt	dragon3	1	1
dragon3_char_td	dragon3	50	50
dragon3_crowd	dragon3	1000	1000
dragon3_cycles	dragon3	500	500
dragon3_dwa_logo	dragon3	5000	5000
dragon3_fargo	dragon3	2300	2300
dragon3_flo	dragon3	1400	1400
dragon3_fx	dragon3	3327	3328
dragon3_fx_mcrt	dragon3	1	1
dragon3_handoff	dragon3	50	50
dragon3_imf	dragon3	400	400
dragon3_light_mcrt	dragon3	1	1
dragon3_lod	dragon3	1	1
dragon3_mckey	dragon3	1	1
dragon3_misc	dragon3	367	367
dragon3_modeling	dragon3	20	15
dragon3_mpaint	dragon3	469	469
dragon3_mpaint_mcrt	dragon3	1	1
dragon3_previz	dragon3	15	15
dragon3_rlo	dragon3	15	20
dragon3_sicario	dragon3	4025	4025
dragon3_simfarm	dragon3	1	1
dragon3_skyfall	dragon3	2875	2875
dragon3_surf	dragon3	299	298
dragon3_surf_mcrt	dragon3	1	1
dragon3_team1	dragon3	1	1
dragon3_train	dragon3	1709	1709
Totals:		**28000**	**28000**

Share Charts

Batch Allocation



Daytime Allocation



	Num Hosts	Num Jobs	Free Cores	Num Cores	Busy Cores	In Use Cores	Core Usage	Ttl Mem	Free Mem	Used Mem	Rsrv Mem	Busy Mem	Mem Usage	Rsrv Mem %
Farm	1389	2579	17741	58395	2220	37516	68.05%	140.9 TB	102 TB	38.1 TB	42.9 TB	0.9 TB	27.65%	30.46%
Us...	828	2556	2164	39224	552	36556	94.61%	75.7 TB	46.5 TB	28.3 TB	39.2 TB	0.9 TB	38.62%	51.83%
Filt...														

Menu

Filters

All | Alerts | Closed | Desktops | Servers | AWS | Low CPU | Unavailable | Unhealthy | Memory | Usable | +

Quick Filter

Auto Refresh: Last Fetch: 14:25:27

Host	FQDN	Chassis	Site	Status	Num Jobs	Config Profile	Render Te...	Cores Free	Cores Used	Cores Busy	Cores Total...	Cores Total
graycash	graycash.a...		GLD	Closed Window	0	desktop	154.7	16	0	0	16	16
grayexam	grayexam....		GLD	Closed Window	0	desktop	15.7	16	0	0	16	16
grayhome	grayhome....		GLD	Closed Window	0	desktop	15.7	16	0	0	16	16
graysoaker	graysoaker...		GLD	Closed Window	0	desktop	154.7	16	0	0	16	16
ih0000	ih0000.las....	las-s2e-21...	LAS	Open	2	default	563.4	0	64	0	32	64
ih0001	ih0001.las....	las-s2e-21...	LAS	Unavailable	0	default	563.8	64	0	0	32	64
ih0002	ih0002.las....	las-s2e-21...	LAS	Unavailable	0	default	563.8	64	0	0	32	64
ih0003	ih0003.las....	las-s2e-21...	LAS	Open	1	default	561.6	0	64	0	32	64
ih0004	ih0004.las....	las-s2e-21...	LAS	Open	2	default	563.2	0	64	0	32	64
ih0005	ih0005.las....	las-s2e-21...	LAS	Open	2	default	561	0	64	0	32	64
ih0006	ih0006.las....	las-s2e-21...	LAS	Open	2	default	563.8	0	64	0	32	64
ih0007	ih0007.las....	las-s2e-21...	LAS	Open	2	default	561.4	0	64	0	32	64
ih0008	ih0008.las....	las-s2e-21...	LAS	Open	2	default	563.3	0	64	0	32	64
ih0009	ih0009.las....	las-s2e-21...	LAS	Open	2	default	563	0	64	0	32	64
ih0010	ih0010.las....	las-s2e-21...	LAS	Open	2	default	563.6	0	64	0	32	64
ih0011	ih0011.las....	las-s2e-21...	LAS	Open	2	default	561.6	0	64	0	32	64
ih0012	ih0012.las....	las-s2e-21...	LAS	Open	2	default	562.5	0	64	0	32	64
ih0013	ih0013.las....	las-s2e-21...	LAS	Open	2	default	563.8	0	64	0	32	64
ih0014	ih0014.las....	las-s2e-21...	LAS	Open	2	default	563.7	0	64	0	32	64
ih0015	ih0015.las....	las-s2e-21...	LAS	Open	2	default	563.4	0	64	0	32	64
ih0016	ih0016.las....	las-s2e-21...	LAS	Open	2	default	561.8	0	64	0	32	64
ih0017	ih0017.las....	las-s2e-21...	LAS	Open	2	default	560.6	0	64	0	32	64
ih0018	ih0018.las....	las-s2e-21...	LAS	Open	2	default	563	0	64	0	32	64
	las....	las-s2e-21...	LAS	Open	2	default	561.2	0	64	0	32	64
	las....	las-s2e-21...	LAS	Open	2	default	563	0	64	0	32	64
	las....	las-s2e-21...	LAS	Open	2	default	563.8	0	64	0	32	64
	las....	gld-609-ch2	LAS	Open	2	default	3217.5	0	64	64	32	64
	las....	las-s2e-21...	LAS	Open	2	default	563.2	0	64	0	32	64
	las....	las-s2e-21...	LAS	Open	2	default	561.2	0	64	0	32	64
	las....	las-s2e-21...	LAS	Open	2	default	563.8	32	32	0	32	64
	las....	las-s2e-21...	LAS	Open	2	default	563.8	0	64	0	32	64
	las....	las-s2e-21...	LAS	Open	2	default	562.6	0	64	0	32	64
	las....	las-s2e-21...	LAS	Open	2	default	562.5	0	64	0	32	64
	las....	las-s2e-21...	LAS	Open	2	default	563.8	0	64	0	32	64
	las....	las-s2e-21...	LAS	Open	2	default	563.8	0	64	0	32	64
	las....	las-s2e-21...	LAS	Open	2	default	563.4	0	64	0	32	64
	las....	las-s2e-21...	LAS	Open	2	default	562.5	0	64	0	32	64
	las....	las-s2e-21...	LAS	Open	2	default	562.3	0	64	0	32	64
	las....	las-s2e-21...	LAS	Open	2	default	561.7	0	64	0	32	64
					2579		681074	17741	37516	2220	39784	58395

Selection Console

Space

Health

gld-407-ch2 [tis01-tiv100]

gld-601-ch1 [iv0003-iv0079]

gld-601-ch2 [iv0001-iv0078]

gld-601-ch3 [iv0004-iv0075]

gld-602-ch1 [iv0002-iv0073]

gld-602-ch2 [iv0000-iv0077]

gld-602-ch3 [is0007-is0059]

gld-603-ch2 [is0003-is0063]

gld-604-ch1 [is0004-is0062]

gld-604-ch2 [is0000-is0058]

gld-609-ch1 [ih10032-ih10045]

gld-609-ch3 [ih10064-ih10079]

gld-611-ch1 [nm10001-nm10009]

gld-609-ch2 [ih0022-ih0041]

las-s2e-2151-ch1 [ih0003-ih0103]

las-s2e-2151-ch2 [ih0002-ih0101]

las-s2e-2151-ch3 [ih0010-ih0109]

las-s2e-2152-ch1 [ih0015-ih0110]

las-s2e-2154-ch1 [ih0005-ih0111]

las-s2e-2154-ch2 [ih0001-ih0066]

las-s2e-2154-ch3 [ih0000-ih0102]

desktop [AWS]

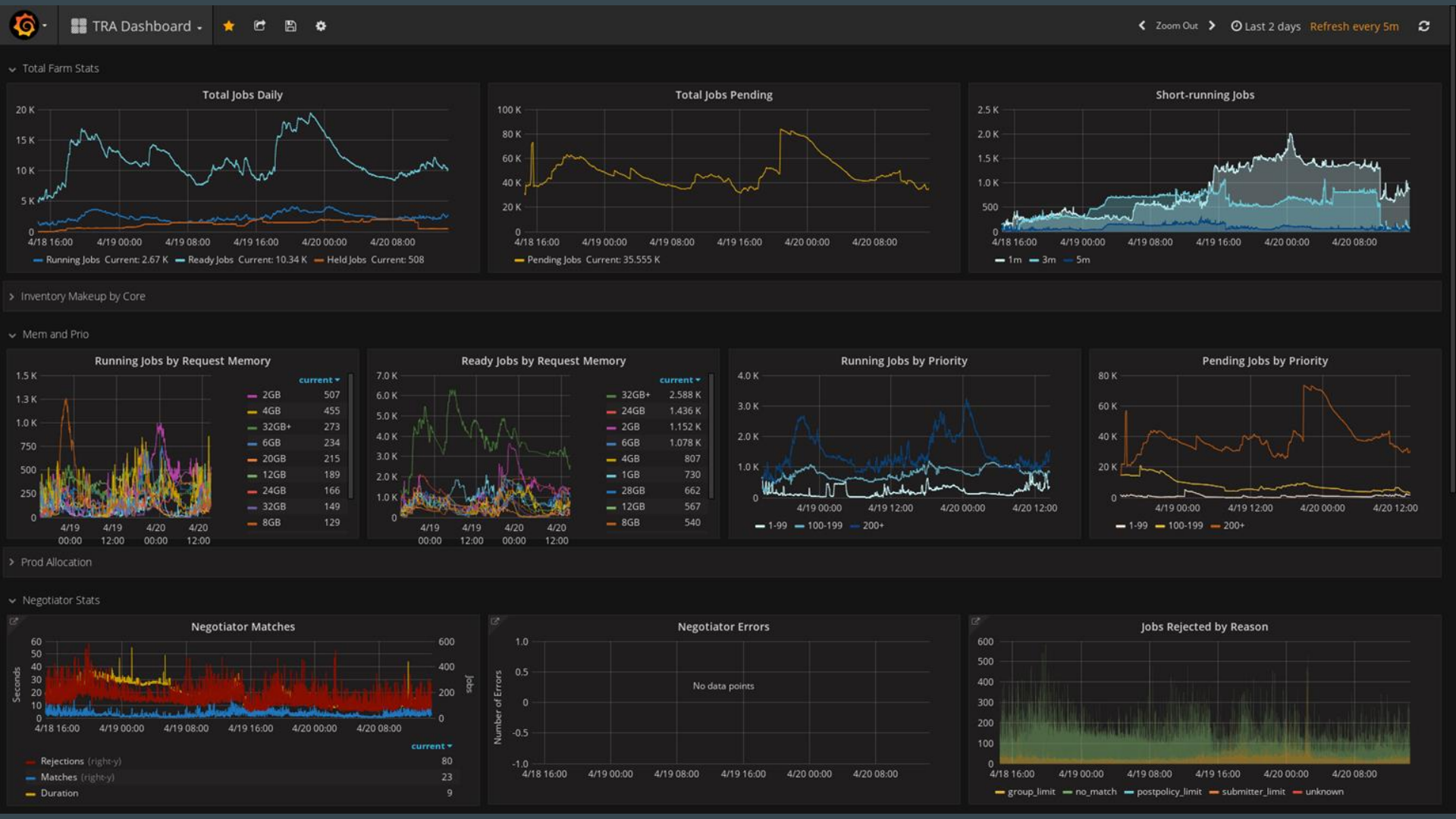
desktop [LAS]

desktop [GLD]

How do we monitor pool stats in real-time?

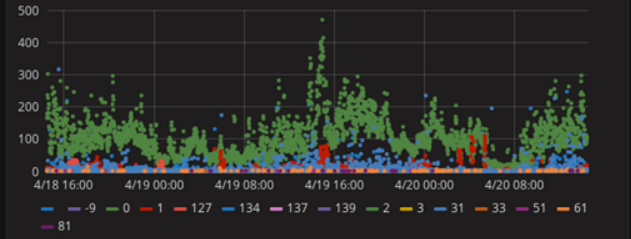
Grafana

- Primarily used by the TRAs / Render Wranglers
- Quickly detect issues and receive alerts
- At-a-glance overview of the render farm
- Diagnose problems
  - Correlate events between metrics
- More dashboards for specific use cases
  - Software license usage, HTCondor negotiator stats, etc.


TRA Dashboard
Zoom Out
Last 2 days
Refresh every 5m
Total Farm Stats
Total Jobs Daily
Running Jobs Current: 2.67 K
Ready Jobs Current: 10.34 K
Held Jobs Current: 508
Total Jobs Pending
Pending Jobs Current: 35.555 K
Short-running Jobs
1m
3m
5m
Inventory Makeup by Core
Mem and Prio
Running Jobs by Request Memory
current
2GB 507
4GB 455
32GB+ 273
6GB 234
20GB 215
12GB 189
24GB 166
32GB 149
8GB 129
Ready Jobs by Request Memory
current
32GB+ 2.588 K
24GB 1.436 K
2GB 1.152 K
6GB 1.078 K
4GB 807
1GB 730
28GB 662
12GB 567
8GB 540
Running Jobs by Priority
1-99
100-199
200+
Pending Jobs by Priority
1-99
100-199
200+
Prod Allocation
Negotiator Stats
Negotiator Matches
Seconds
Jobs
current
Rejections (right-y) 80
Matches (right-y) 23
Duration 9
Negotiator Errors
Number of Errors
No data points
Jobs Rejected by Reason
group_limit
no_match
postpolicy_limit
submitter_limit
unknown

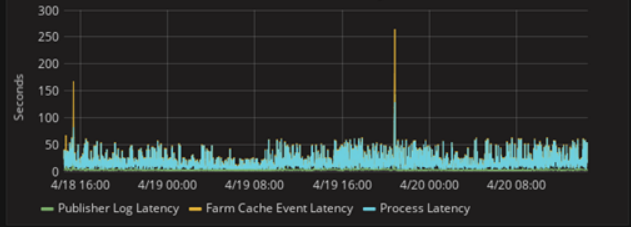
Farm Stats

Exit Codes



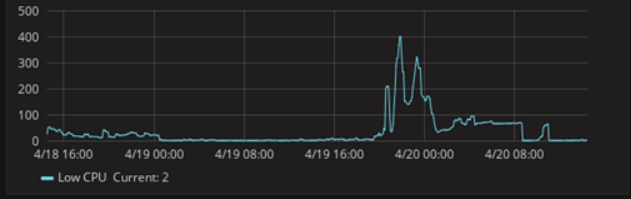
Job Starts and Ends

Farm Cache Latency

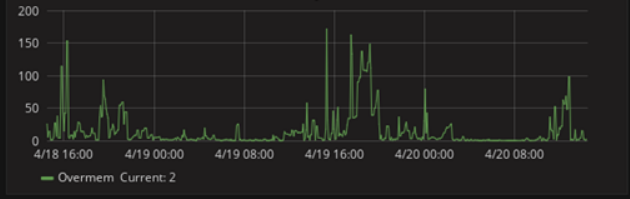


Alerts

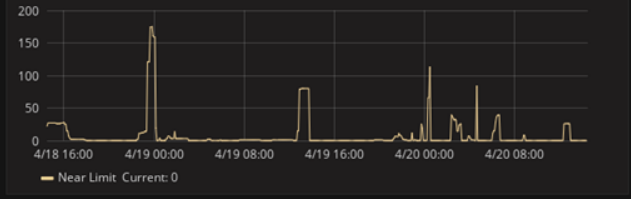
Cpu Alerts



Memory Alerts



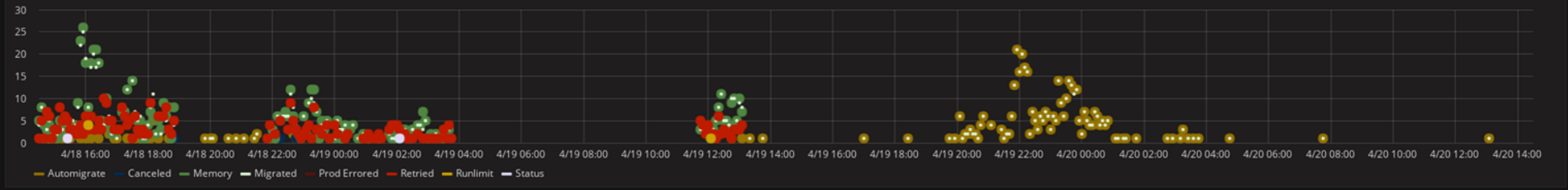
Near Limit Alerts



Limits

Cron coverage

Auto Events



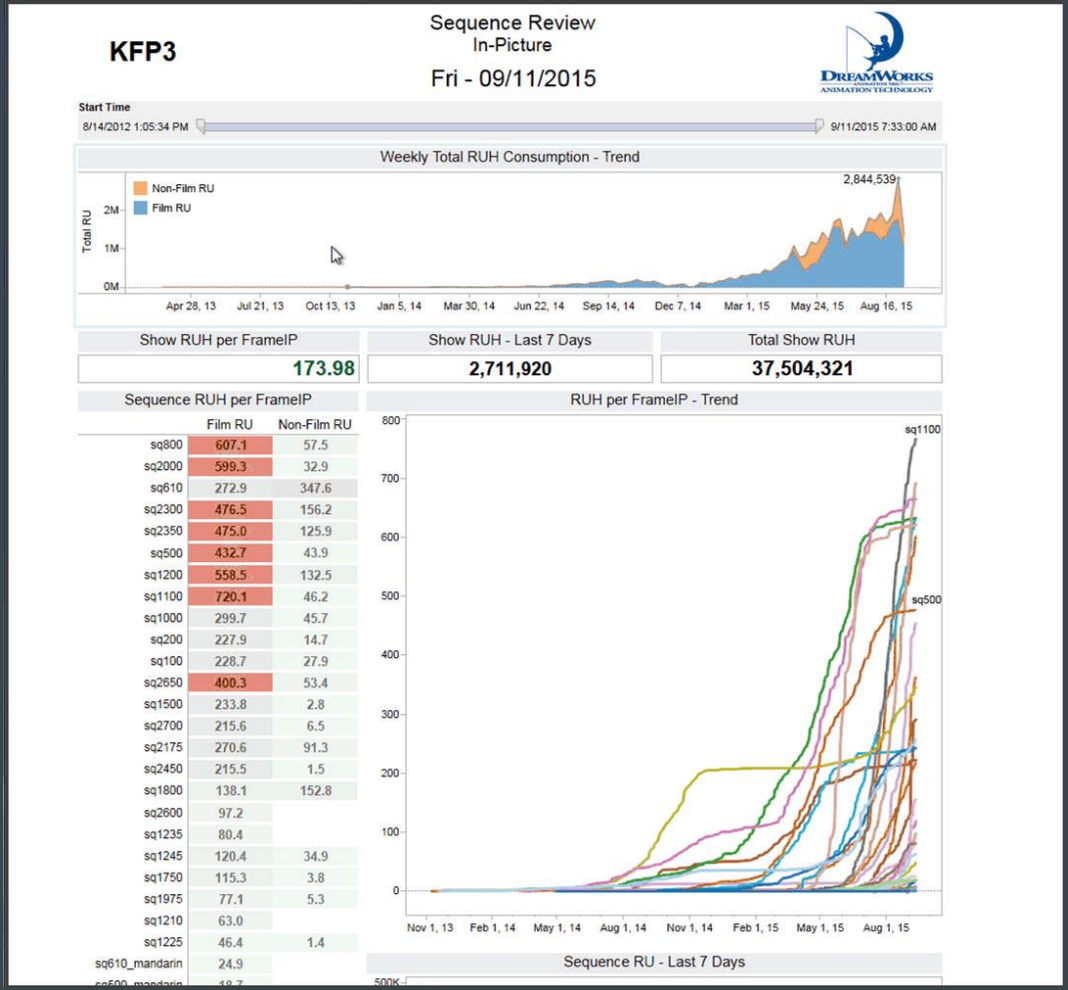
Viewing Historical Data

Tableau

- Big Picture
  - Trends over time
  - Comparison between productions
- Used primarily for scheduling
  - Can we fit all of the rendering we’re planning on doing into the render farm concurrently?
  - How do we move things around to make it all fit?
  - Are there areas we can optimize to better use the existing farm resources?
  - Are we still on schedule?
- Historical data stored in a separate database

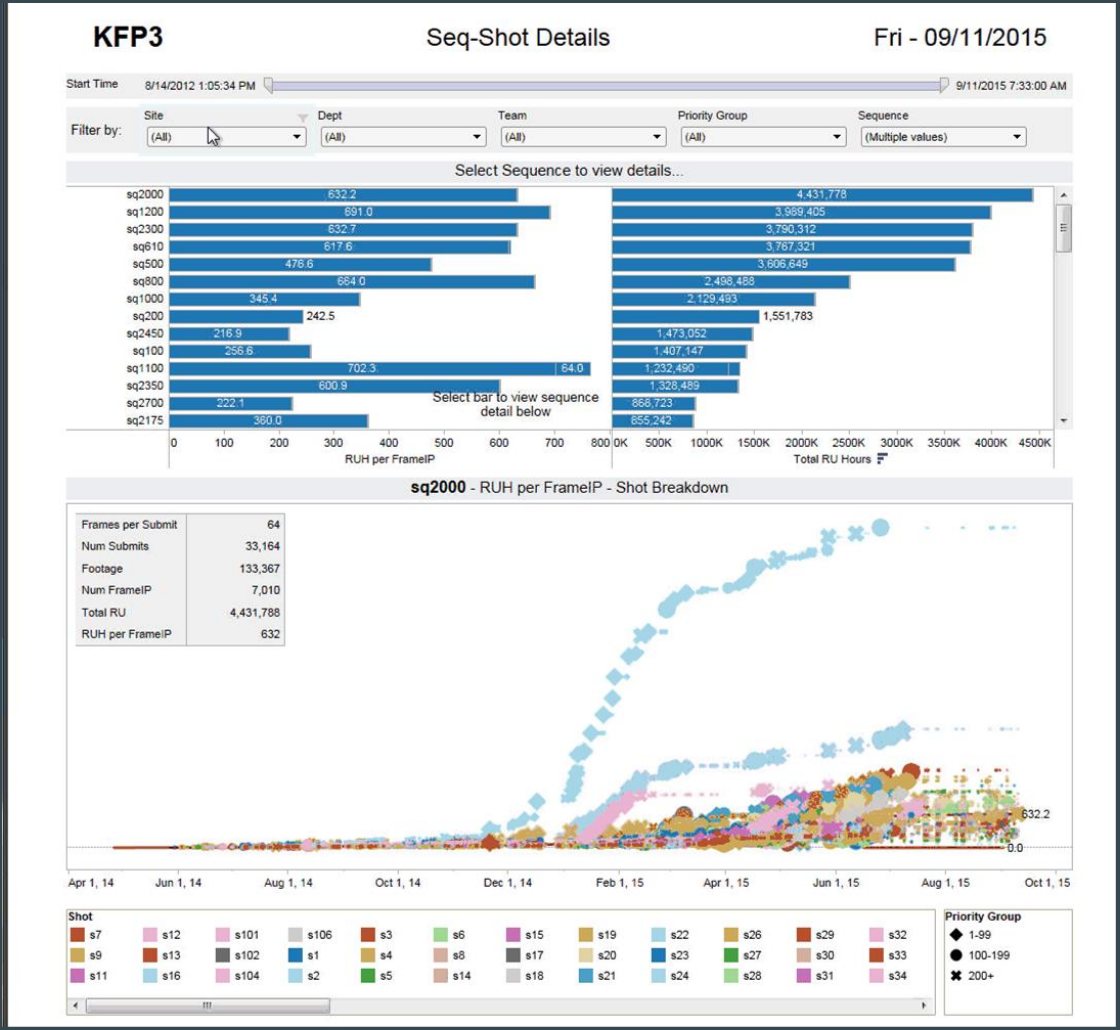
RU Per Frame

- Shows historically how much compute is being used for each sequence
- Tracks overall trends and identifies complex sequences
- Userful for scheduling production work, allocating resources between teams



Sequence-Shot Details

- Shows RU usage for every farm job, broken down by sequence and shot
- Useful for identifying outliers and specific issues



Overnight Rendering Summary

- Tracks nightly render farm performance
- Number of jobs submitted by each production
  - Grouped by priority, with percent completed
- Amount of RU used by each production compared to their allocations, broken down by team
- Total RU used compared to capacity, broken down by production
- Proportion of capacity allocated to each production compared to what they actually used
- Memory usage compared to capacity

Question Time