

Who is Load DynamiX?

Leader in storage performance validation

Mission

Provide actionable insight into storage infrastructure behavior to assure performance & optimize cost

Product Suite

Load DynamiX Enterprise test management platform combined with load generation appliance



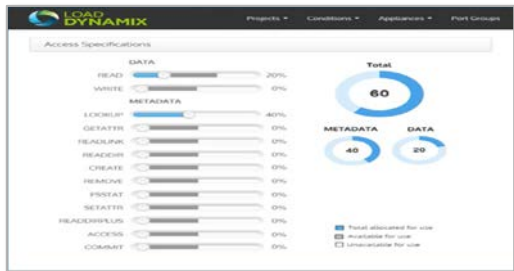
The Load DynamiX Solution

Load DynamiX Enterprise software

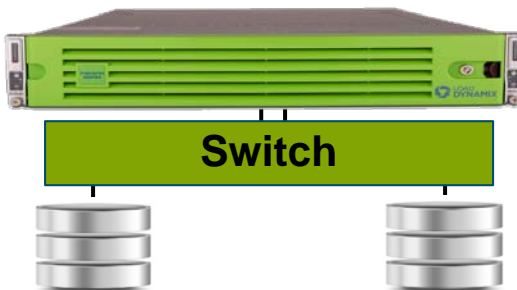
ORACLE®
Workload Modeling &
Performance Profiling



Performance Analytics

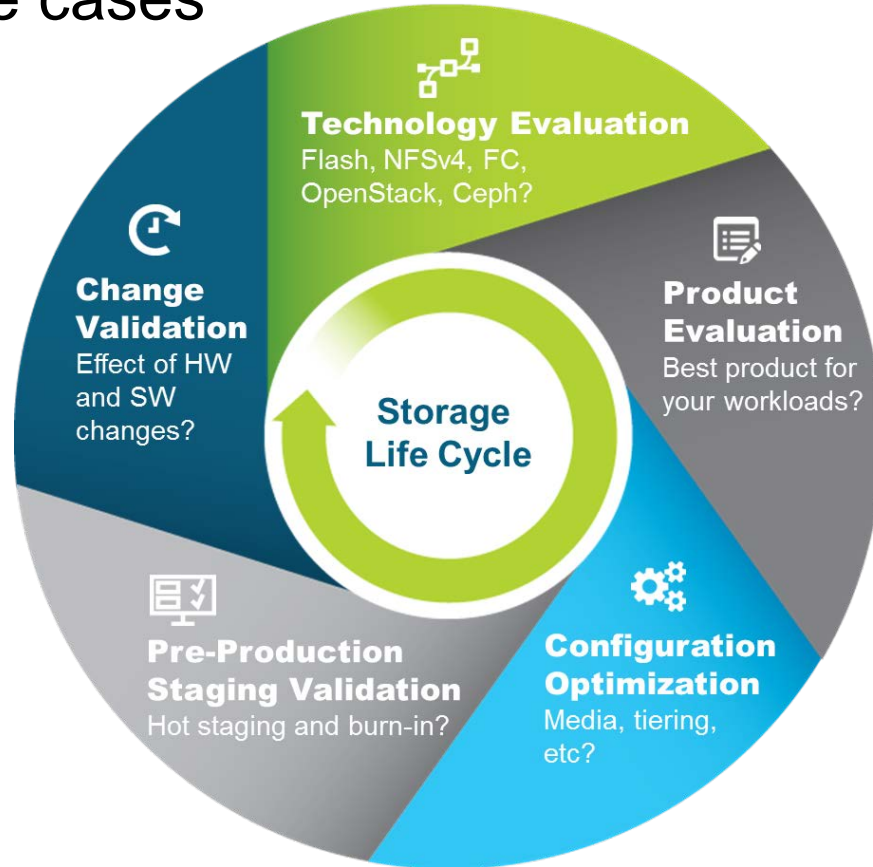


Load DynamiX Performance
Validation Appliance



Why IT Organizations Use Load Dynamix

Use cases



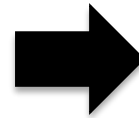
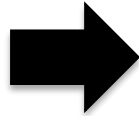
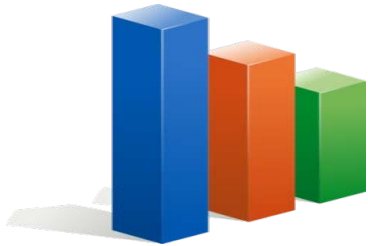
Load DynamiX Enterprise

1. Use performance metrics from an existing application
2. Create a realistic workload profile
3. Simulate the production application using the Composite Workload feature of LDX Enterprise
4. Review performance metrics; analyze results

1 Create a workload model*

PRODUCTION STATS

(Perfstats, .nar, .btp,
NFSstat, UniSphere, etc)



**ACCURATE,
REALISTIC
WORKLOAD
MODEL**

***DB apps do not present a single I/O profile**



I/O Metrics via Storage Monitoring Tool

Via existing app on storage array


Name	Host IOs/sec	Read Response Time (ms)	Write Response Time (ms)	% Hit	% Writes	% Reads	% Read Miss	WP Count	Avg I/O Size	Capacity (GB)	% Used	%I/O Avg	Member	%RR	%SR	%RW	%SW
arc	2.8	1.7	7.7	100	98.4	1.6	2.9	0	347	256	98	0.10	2745.9	4		93	7
dbf1	522.1	2.7	0.8	51.5	0.4	99.6	48.7	10.9	19	256	95	19.01	2745.9	4	95	4	
dbf2	448.5	2.9	0.8	51.3	0.1	99.9	48.7	2.4	16	256	100	16.33	2745.9	4	94	6	
dbf3	316.6	1.8	1.2	82.5	5.2	94.8	18.4	96.8	19	256	100	11.53	2745.9	4	84	11	5
dbf4	297	1.8	0.9	42.9	0.9	99.1	57.6	8	29	100	100	10.82	2745.9	2	99		1
dbf5	235.6	1.4	1.2	87.2	4.8	95.2	13.4	65.8	17	256	100	8.58	2745.9	4	84	11	5
dbf6	220.2	1.7	1	83.9	5.6	94.4	17	58.9	20	256	100	8.02	2745.9	4	84	11	5
dbf7	201.4	3.3	1.4	82.7	1.5	98.5	17.6	17.2	237	256	95	7.33	2745.9	4	94	4	1
dbf8	165.7	3.1	1.1	66.2	5.1	94.9	35.6	35.1	19	200	83	6.03	2745.9	4	91	3	5
dbf9	91.9	1.3	2.2	88.3	6.2	93.8	12.4	24.7	17	100	100	3.35	2745.9	2	82	11	6
dbf10	90.3	3.3	2.3	71.6	27.7	72.3	39.1	145.7	48	200	99	3.29	2745.9	4	73	1	26
dbf11	7.6	5.4	1.3	57.9	17.8	82.2	51.3	6.3	105	256	100	0.28	2745.9	4	81	1	18
oraex	1.5	3.6	0.7	62.6	17.7	82.3	42.2	1.4	2	33	86	0.05	2745.9	1	82		17
quest	6.3	0.8	1.4	98.5	88.5	11.5	7.2	13.5	13	10	40	0.23	2745.9	1	9	2	86
redo1	70.2	6	0.7	87.9	96.9	3.1	20.3	63.6	28	32	93	2.56	2745.9	4	3		88
redo2	68.1	0.5	0.8	88	99.6	0.4	0.9	68.4	14	32	93	2.48	2745.9	4			90



I/O Metrics from Existing App on Storage Array

Sorted by common LUN I/O profiles

Name	Host I/Os/sec	% Writes	%Reads	Avg I/O Size	Capacity (GB)	%RR	%SR	%RW	%SW
dbf1	522.1	0.4	99.6	19	256	95	4	0	0
dbf2	448.5	0.1	99.9	16	256	94	6	0	0
dbf3	316.6	5.2	94.8	19	256	84	11	5	0
dbf4	297	0.9	99.1	29	100	99	0	1	0
dbf5	235.6	4.8	95.2	17	256	84	11	5	0
dbf6	220.2	5.6	94.4	20	256	84	11	5	0
dbf7	165.7	5.1	94.9	19	200	91	3	5	0
dbf8	91.9	6.2	93.8	17	100	82	11	6	0
dbf9	90.3	27.7	72.3	48	200	73	1	26	0
dbf10	7.6	17.8	82.2	105	256	81	1	18	1
dbf11	201.4	1.5	98.5	237	256	94	4	1	0
redo1	70.2	96.9	3.1	28	32	3	0	88	9
redo2	68.1	99.6	0.4	14	32	0	0	90	9
quest	6.3	88.5	11.5	13	10	9	2	86	4
arc	2.8	98.4	1.6	347	256	0	0	93	7
oraex	1.5	17.7	82.3	2	33	82	0	17	2
dbf	2395.5	7.38	92.62	30.90	213.60	87	6	7	0
dbf11	201.4	1.5	98.5	237	256	94	4	1	0
redo	138.3	98.25	1.75	21	32	2	0	89	9
other	10.6	68.2	31.8	120.7	99.7	30	1	65	4



[Projects](#) ▾ [Conditions](#) ▾ [Reports](#) ▾ [Appliances](#) ▾ [Test Beds](#) ▾ | [Jim Bahn](#) ▾

Home

Dashboard

+ Add ▾

1. Setup

Setup appliances and test beds

- Appliances 2
- Test Beds 7

2. Workloads

Workload, project & project suite library

- Projects 106
- Workloads 65
- Project Suites 3
- Iteration Suites 2

3. Tests Results

Running and completed test & test suite results

- Running Tests 0
- Completed Tests 1236
- Running Test Suites 0
- Completed Test Suites 10

4. Analyze

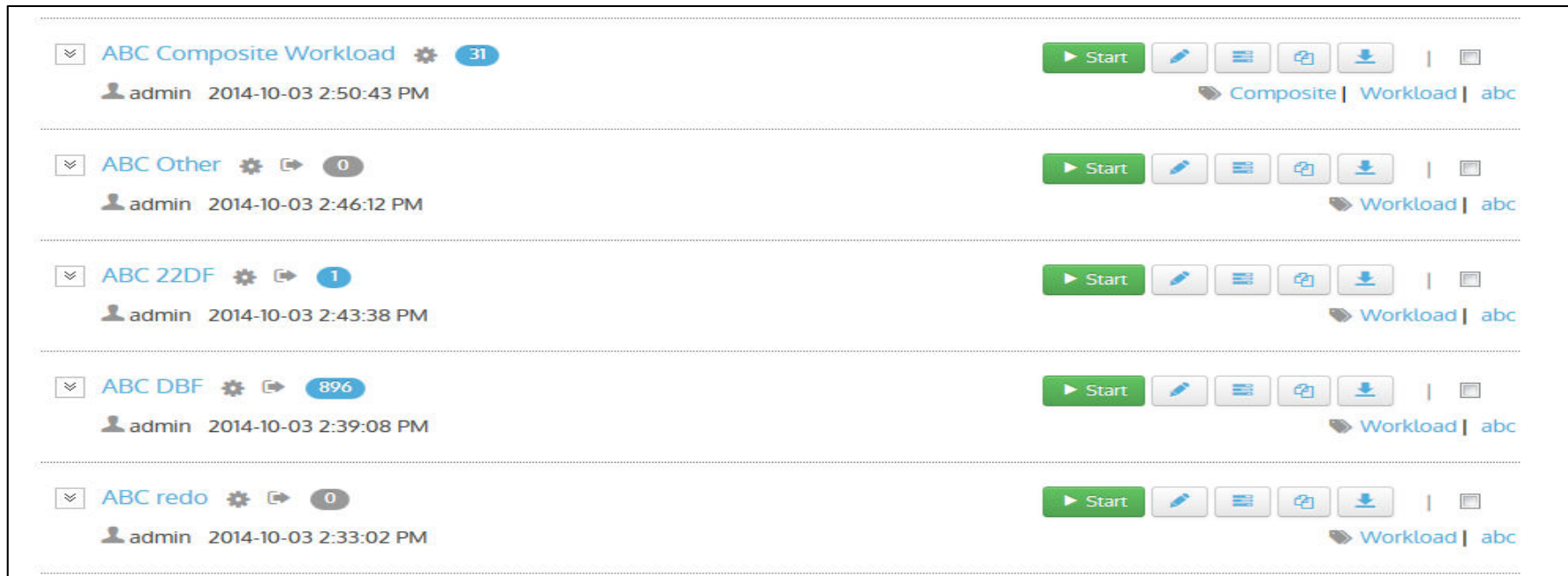
Analyze results of the test runs

- Report Templates 1
- Generated Reports 1
- Conditions 5
- Analysis Actions 7

[🔥 Utilization statistics](#)

© Load Dynamix Inc. 2014 Version 2.4.8-build.43.c12c40be: [What's new](#) | [User Guide](#) | [API Docs](#)

Create Workloads for Each LUN Group

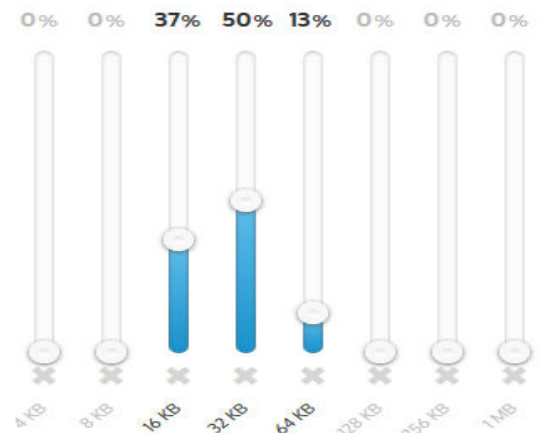


The screenshot displays a list of five workloads in a management interface. Each workload entry includes a dropdown arrow, the workload name, a gear icon for settings, a status icon (a blue circle with a number or a grey circle with a number), a user icon, the user name 'admin', and a timestamp. To the right of each entry is a 'Start' button and a set of utility icons: a pencil (edit), a list (details), a folder (share), a download arrow, and a square (stop). Below the utility icons is a breadcrumb trail.

Workload Name	Status	User	Timestamp	Start Button	Utility Icons	Breadcrumb
ABC Composite Workload	31	admin	2014-10-03 2:50:43 PM	Start	Start, Edit, Details, Share, Download, Stop	Composite Workload abc
ABC Other	0	admin	2014-10-03 2:46:12 PM	Start	Start, Edit, Details, Share, Download, Stop	Workload abc
ABC 22DF	1	admin	2014-10-03 2:43:38 PM	Start	Start, Edit, Details, Share, Download, Stop	Workload abc
ABC DBF	896	admin	2014-10-03 2:39:08 PM	Start	Start, Edit, Details, Share, Download, Stop	Workload abc
ABC redo	0	admin	2014-10-03 2:33:02 PM	Start	Start, Edit, Details, Share, Download, Stop	Workload abc

Build a Workload Model for Each LUN Group

Use [bin distribution of request sizes, with custom bins](#) ⓘ



Request Size	Percentage
4 KB	0%
8 KB	0%
16 KB	37%
32 KB	50%
64 KB	13%
128 KB	0%
256 KB	0%
1 MB	0%

Set slider maximum to: [100%](#) ⌵

- Allocated: 100%
- Available for use: 0%
- Unavailable for use

Size: [KB](#) ⌵

Configure I/O Region as [percentage of LUN](#) ⓘ

Region Offset: % of LUN

Region Size: % of LUN

or [Cancel](#)

Build a Workload Model for Each LUN Group

Configure I/O Region as [percentage of LUN](#) ⓘ

Region Offset: → Region Size: ← → ⓘ

<input type="text" value="5.0"/> % of LUN	<input type="text" value="90.0"/> % of LUN	LUN
---	--	-----

Use fixed Number of Asynchronous I/Os equal to ⓘ

MPIO ⌆

Note that this settings is only applicable when used with MPIO enabled test bed

MPIO Policy: [Round robin](#) ⌵

Enable ALUA Reconfiguration

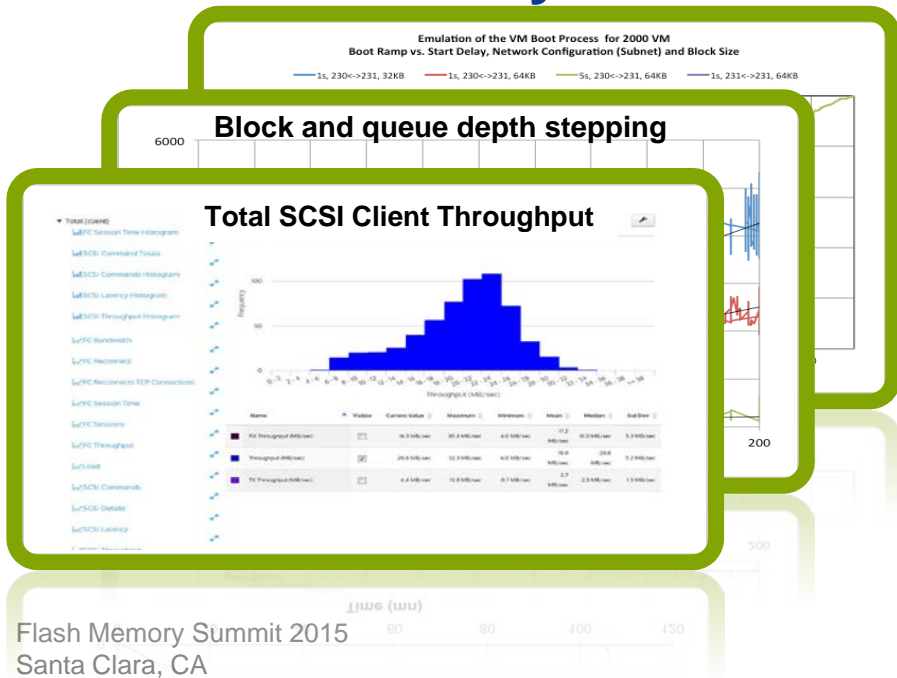
Error Handling ⌆

Ignore errors gracefully ⓘ

or [Cancel](#)

3

Analyze Results Analytics

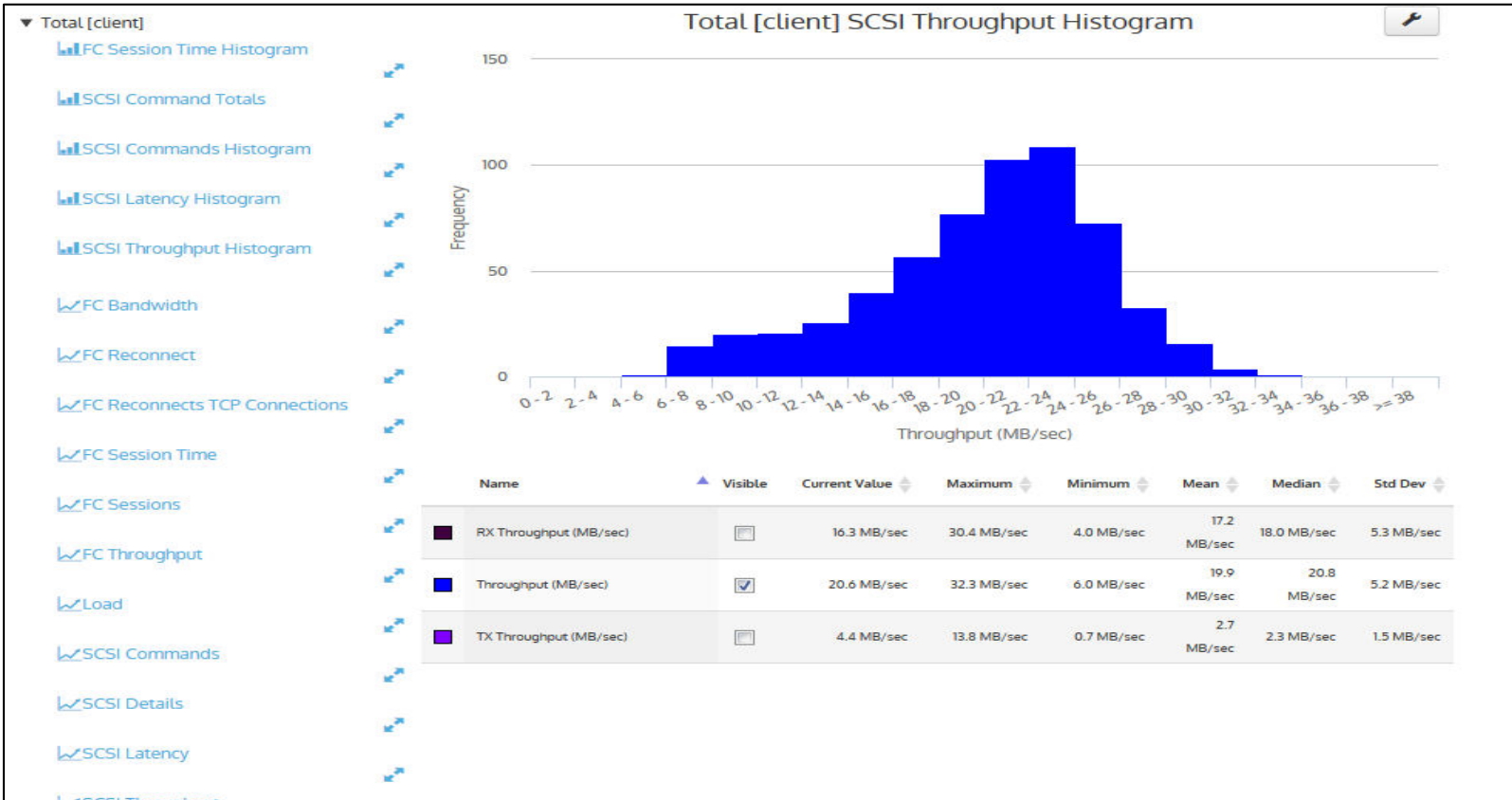


Insight

- Technology Evaluation
- Product Evaluation
- Configuration Optimization
- Pre-production staging validation
- Change validation

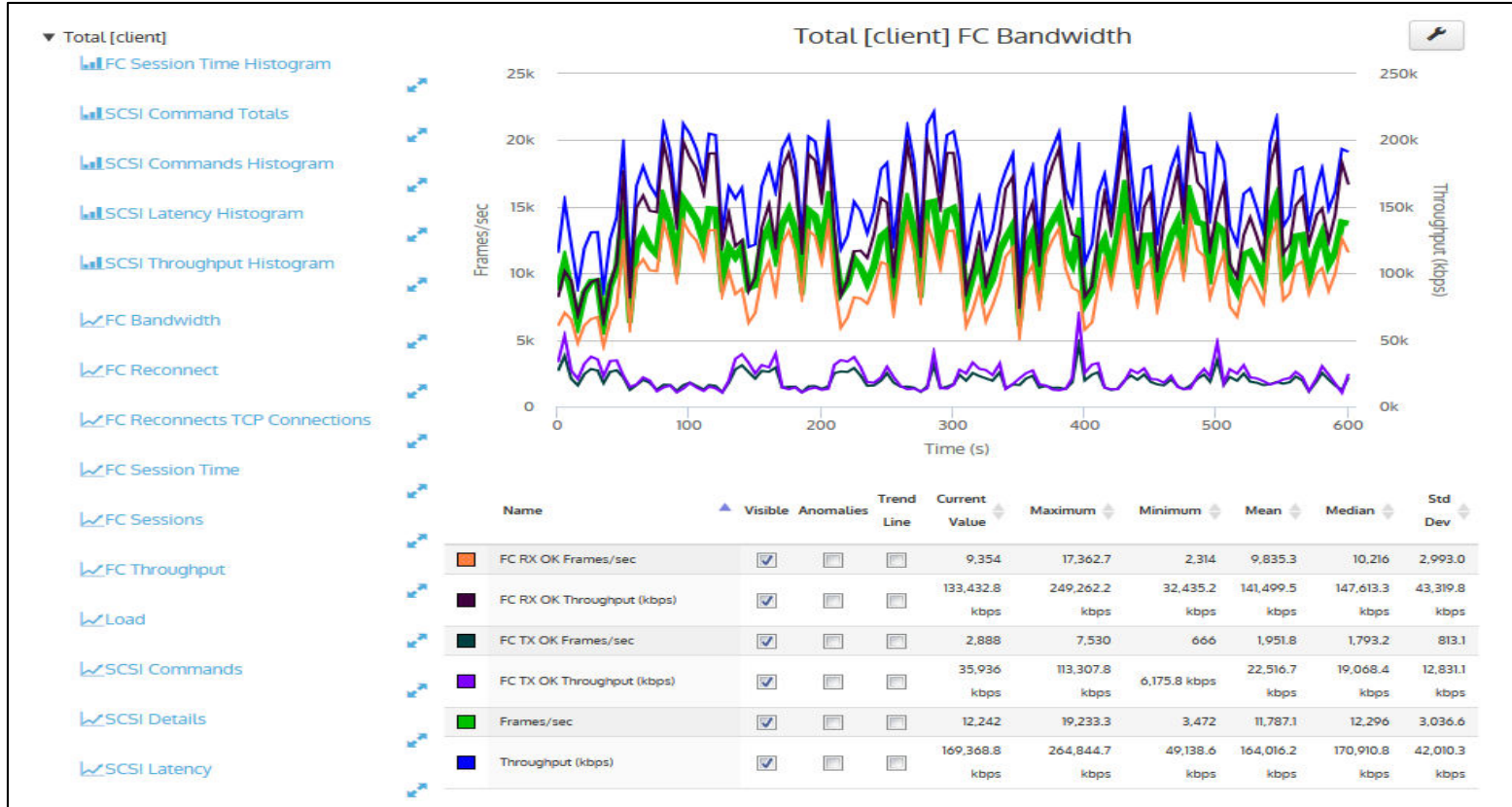
Analyze Report Results

Throughput histogram



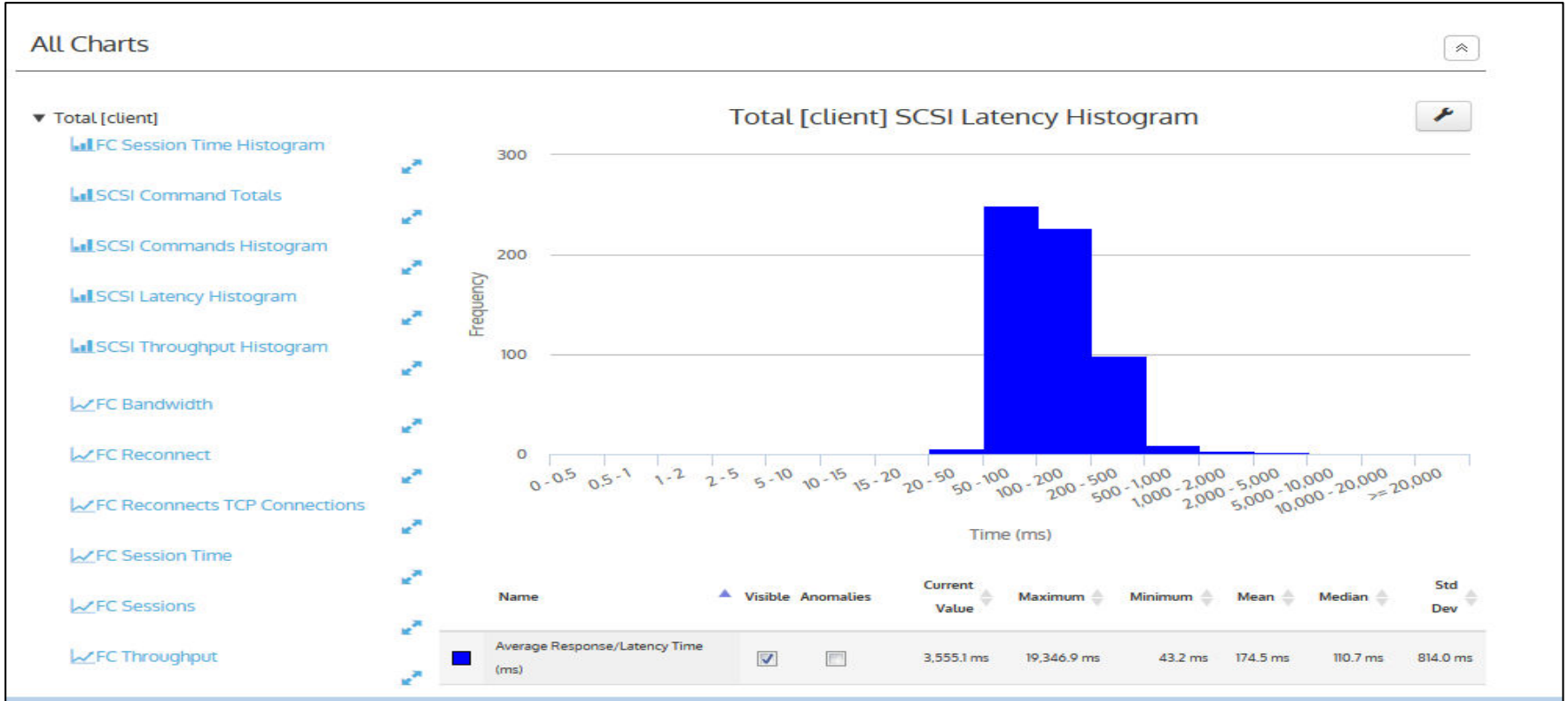
Analyze Report Results

Bandwidth vs. Time



Analyze Report Results

Latency histogram

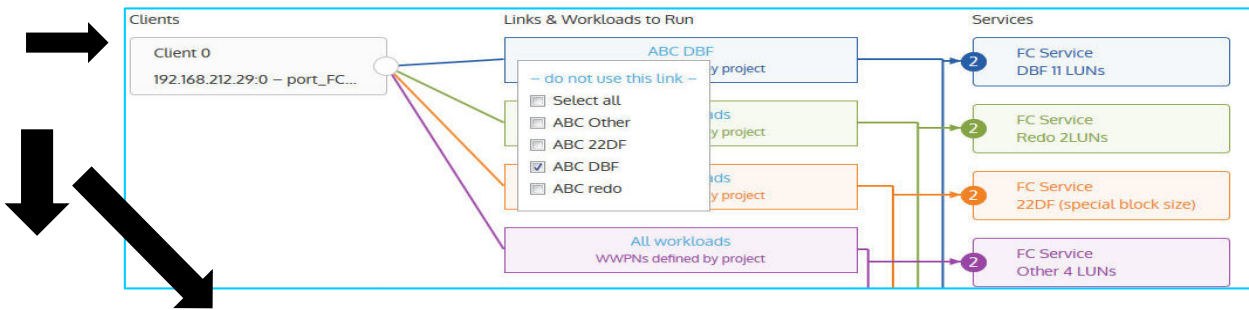




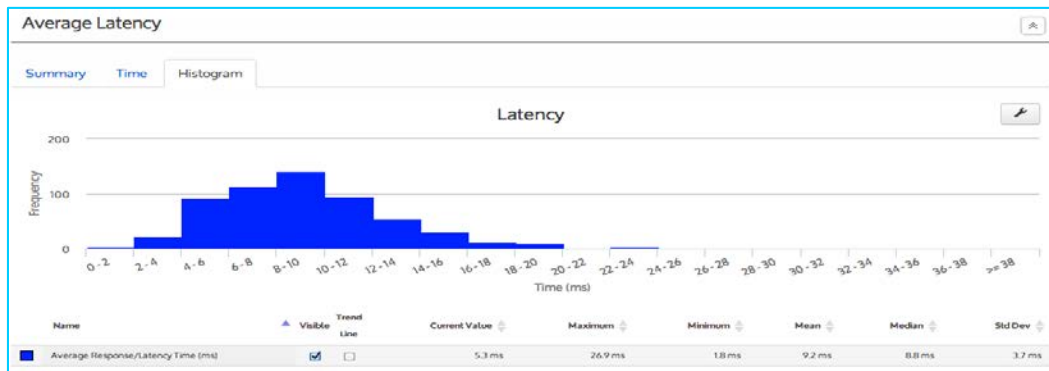
Use Case Summary

Test DB performance pre-deployment via workload modeling

1. Characterize composite workload from existing metrics (and other figures) as related to the mission and critical database workload captured from the existing (old) array



Host I/Os/sec	% Writes	%Reads	Avg I/O Size	Capacity (GB)
522.1	0.4	99.6	19	256
448.5	0.1	99.9	16	256
316.6	5.2	94.8	19	256
297	0.9	99.1	29	100
235.6	4.8	95.2	17	256
220.2	5.6	94.4	20	256
201.4	1.5	98.5	237	256
165.7	5.1	94.9	19	200
91.9	6.2	93.8	17	100
90.3	27.7	72.3	48	200
70.2	96.9	3.1	28	32
68.1	99.6	0.4	14	32
7.6	17.8	82.2	105	256
6.3	88.5	11.5	13	10
2.8	98.4	1.6	347	256
1.5	17.7	82.3	2	33
0.1	11.5	88.5	4	33
0	0	100	0	0.5
0	0	100	0	0.5
0	0	100	0	0.5
0	2.5	97.5	0	33



Benefits of Using Load DynamiX

- **Optimize Storage Investment**
 - Eliminate over/under-provisioning, or stove-piping, by aligning your workload requirements to deployment decisions
- **Mitigate Risk**
 - Identify issues before deployment by testing at extreme scale and worst-case conditions
- **Innovate with Confidence**
 - Adopt the latest storage technologies without the fear of impacting your Oracle application performance

“If you can’t validate technology before it’s deployed into production, then you’re flying blind.”

Julia Palmer
Performance Engineering
Manager

