# Tracking slimming paint performance

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Measuring the performance of the display item cache

Perf dashboard results

#### Goals

The current goals of measuring Slimming Paint performance are:

- 1. Verify achievement performance equivalent to the pre-Slimming Paint architecture
- 2. Measure continuously to avoid regressions in Slimming Paint performance and verify expected improvements

Post-launch, goal (1) is past, but goal (2) remains.

#### Metrics

We will measure the same information which is already measured for non-Slimming Paint configurations. In particular, we will measure all metrics currently present in the Telemetry and Cluster Telemetry bots.

For Slimming Paint phase 1, by far the most relevant metric is rasterize\_and\_record, which measures directly the paint and rasterization overhead, but skipping other code that should be unchanged in this phase. Therefore we will primarily be monitoring that metric, by adding a rasterize\_and\_record\_micro\_slimming\_paint.top25 telemetry measurement. In addition, we will make lots of runs of the rasterize\_and\_record benchmark in Cluster Telemetry. An example is below.

#### Cluster telemetry results (<u>cluster telemetry</u>)

Data created by clicking show run details and adding --enable-slimming-paint to "withpatch".

#### 3/11/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
viewport_picture_size (bytes)	428503101.333	4080273359.330	852.216%	161.985%
pixels recorded (pixels)	7931296495.670	31732262001.300	300.089%	120.014%
rasterize_time (ms)	24756.381	38477.166	55.423%	43.397%

record_time_painting_disabled (ms)	1900.032	2483.114	30.688%	26.606%
pixels rasterized (pixels)	9563925115.330	9522727956.670	-0.431%	-0.432%
record_time_sk_null_canvas (ms)	2638.881	2483.434	-5.891%	-6.069%
record time caching disabled (ms)	2963.263	2558.882	-13.646%	-14.646%
record_time (ms)	2967.750	2560.837	-13.711%	-14.720%

#### 3/16/15 - 5/5/15 cluster telemetry run data

This file was getting a bit unwieldy, see the other doc for past data.

#### 5/4/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record time caching disabled (ms)	3985.436	4865.752	22.088%	19.891%
record_time_painting_disabled (ms)	2575.557	3010.465	16.886%	15.571%
pixels recorded (pixels)	10031386360.300	10032623169.500	0.012%	0.012%
pixels_rasterized (pixels)	12456718161.700	12210732971.700	-1.975%	-1.994%
rasterize time (ms)	31118.572	30018.123	-3.536%	-3.600%
viewport_picture_size (bytes)	600653642.667	541554333.333	-9.839%	-10.348%
record_time (ms)	3992.218	2470.447	-38.118%	-47.094%

#### 5/5/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record_time_caching_disabled (ms)	3988.193	4897.526	22.801%	20.467%
record time painting disabled (ms)	2575.130	3036.962	17.934%	16.458%
pixels_recorded (pixels)	9999503428.500	9997350862.330	-0.022%	-0.022%
pixels_rasterized (pixels)	12413352847.700	12161271174.300	-2.031%	-2.052%
rasterize_time (ms)	30732.471	29644.795	-3.539%	-3.603%
viewport picture size (bytes)	599247189.333	539834581.333	-9.915%	-10.432%
record_time (ms)	3994.481	2481.616	-37.874%	-46.722%

#### 5/8/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record time caching disabled (ms)	4002.202	4692.597	17.250%	15.881%
record_time_painting_disabled (ms)	2595.928	2993.068	15.299%	14.212%
pixels recorded (pixels)	10032610592.300	10028555421.700	-0.040%	-0.040%
pixels_rasterized (pixels)	12458824961	12205286657	-2.035%	-2.056%
rasterize time (ms)	30852.319	29767.164	-3.517%	-3.580%
viewport_picture_size (bytes)	601762442.667	352257570.667	-41.462%	-52.306%
record_time (ms)	4009.340	2338.147	-41.682%	-52.657%

## 5/9/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record_time_caching_disabled (ms)	4021.248	4655.271	15.767%	14.615%
record time painting disabled (ms)	2590.978	2968.328	14.564%	13.575%
pixels_recorded (pixels)	10029195715.500	10030255615.800	0.011%	0.011%
pixels rasterized (pixels)	12448219644.300	12198934263.700	-2.003%	-2.023%
rasterize_time (ms)	31299.130	30130.741	-3.733%	-3.804%
viewport picture size (bytes)	601537245.333	359692930.667	-40.204%	-50.320%
record_time (ms)	4028.542	2332.320	-42.105%	-53.333%

#### 5/10/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record_time_caching_disabled (ms)	4063.354	4609.766	13.447%	12.600%
record time painting disabled (ms)	2652.109	2985.148	12.557%	11.816%
pixels_recorded (pixels)	9970425903.500	9976929691.500	0.065%	0.065%
pixels rasterized (pixels)	12380010725	12135003616.300	-1.979%	-1.999%
rasterize time (ms)	31038.827	29939.646	-3.541%	-3.605%

viewport_picture_size (bytes)	605819608	350972976	-42.066%	-53.271%
record_time (ms)	4069.665	2349.597	-42.266%	-53.591%

## 5/10/15 cluster telemetry run (android)

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record_time_caching_disabled (ms)	44401.650	58150.809	30.965%	26.814%
record time painting disabled (ms)	28743.567	36246.569	26.103%	23.090%
pixels_recorded (pixels)	11585475779	11573492330.300	-0.103%	-0.103%
pixels_rasterized (pixels)	14923277351.300	14557994458	-2.448%	-2.478%
rasterize_time (ms)	281878.621	273241.261	-3.064%	-3.112%
viewport picture size (bytes)	470986152	312895813.333	-33.566%	-40.335%
record_time (ms)	44519.390	28286.448	-36.463%	-44.592%

#### 5/11/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record_time_caching_disabled (ms)	3992.979	4680.425	17.216%	15.852%
record time painting disabled (ms)	2601.687	2957.295	13.668%	12.794%
pixels_recorded (pixels)	9999148764.830	9996339404.330	-0.028%	-0.028%
pixels rasterized (pixels)	12403322795.700	12157860258.300	-1.979%	-1.999%
rasterize_time (ms)	30810.135	29682.547	-3.660%	-3.728%
viewport picture size (bytes)	599313677.333	358631493.333	-40.160%	-50.250%
record time (ms)	3999.703	2338.230	-41.540%	-52.429%

#### 5/12/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record time caching disabled (ms)	3933.433	4554.154	15.781%	14.627%
record_time_painting_disabled (ms)	2577.266	2925.285	13.503%	12.649%

pixels_recorded (pixels)	9948525072.330	9947316379	-0.012%	-0.012%
pixels_rasterized (pixels)	12339154984.300	12099331045.700	-1.944%	-1.963%
rasterize_time (ms)	30402.837	29326.024	-3.542%	-3.606%
viewport picture size (bytes)	595477280	356855597.333	-40.072%	-50.113%
record_time (ms)	3940.794	2325.684	-40.984%	-51.548%

## 5/13/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record time caching disabled (ms)	3977.873	4558.483	14.596%	13.603%
record_time_painting_disabled (ms)	2584.018	2920.626	13.027%	12.230%
pixels recorded (pixels)	9944462170.830	9946214962.170	0.018%	0.018%
pixels_rasterized (pixels)	12330142718	12083066536.700	-2.004%	-2.024%
rasterize time (ms)	30684.854	29635.754	-3.419%	-3.478%
viewport_picture_size (bytes)	601211077.333	349343168	-41.893%	-52.994%
record_time (ms)	3984.678	2302.431	-42.218%	-53.514%

## 5/14/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record time caching disabled (ms)	3947.442	4644.901	17.669%	16.234%
record_time_painting_disabled (ms)	2577.411	2927.178	13.570%	12.708%
pixels recorded (pixels)	9879046557.670	9878133502.170	-0.009%	-0.009%
pixels_rasterized (pixels)	12249050503.300	12002529510	-2.013%	-2.033%
rasterize time (ms)	30557.789	29464.988	-3.576%	-3.641%
viewport_picture_size (bytes)	591686568	354390784	-40.105%	-50.164%
record_time (ms)	3953.421	2288.292	-42.119%	-53.355%

#### 5/15/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record time caching disabled (ms)	3972.715	4650.912	17.071%	15.729%
record time painting disabled (ms)	2616.676	2986.250	14.124%	13.192%
pixels recorded (pixels)	9912259716.670	9904593123	-0.077%	-0.077%
pixels_rasterized (pixels)	12290421790.300	12044352362.300	-2.002%	-2.022%
rasterize time (ms)	30675.454	29583.805	-3.559%	-3.623%
viewport_picture_size (bytes)	601385322.667	355720864	-40.850%	-51.335%
record_time (ms)	3978.781	2348.960	-40.963%	-51.514%

#### 5/16/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record_time_caching_disabled (ms)	3545.469	4130.167	16.491%	15.235%
record time painting disabled (ms)	2339.798	2653.887	13.424%	12.579%
pixels_recorded (pixels)	7622913707.330	7617665015.170	-0.069%	-0.069%
pixels rasterized (pixels)	10189081163	9974384364.330	-2.107%	-2.130%
rasterize_time (ms)	24893.097	24137.175	-3.037%	-3.083%
record_time (ms)	3551.167	2107.295	-40.659%	-51.034%
viewport_picture_size (bytes)	538313893.333	296710378.667	-44.882%	-57.867%

#### 5/17/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record_time_caching_disabled (ms)	3504.732	4145.267	18.276%	16.746%
record time painting disabled (ms)	2303.044	2660.476	15.520%	14.402%
pixels_recorded (pixels)	7634386024.500	7630815938.330	-0.047%	-0.047%
pixels rasterized (pixels)	10203615809.700	9988575217	-2.107%	-2.130%
rasterize_time (ms)	24822.893	24103.238	-2.899%	-2.942%

record_time (ms)	3510.147	2129.014	-39.347%	-48.984%
viewport picture size (bytes)	538779616	303910757.333	-43.593%	-55.743%

#### 5/19/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record_time_caching_disabled (ms)	3647.957	4254.254	16.620%	15.345%
record time painting disabled (ms)	2427.748	2774.428	14.280%	13.328%
pixels_recorded (pixels)	7724137121	7729395336.170	0.068%	0.068%
pixels rasterized (pixels)	10322978312.300	10110941363	-2.054%	-2.075%
rasterize_time (ms)	25362.254	24627.785	-2.896%	-2.938%
record_time (ms)	3653.470	2187.498	-40.125%	-50.196%
viewport_picture_size (bytes)	544410389.333	300386538.667	-44.824%	-57.771%

#### 5/20/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record_time_caching_disabled (ms)	3633.730	4220.557	16.149%	14.943%
record time painting disabled (ms)	2374.527	2744.203	15.568%	14.444%
pixels_recorded (pixels)	7709017897	7707787428.830	-0.016%	-0.016%
pixels_rasterized (pixels)	10305588142.300	10093497172.300	-2.058%	-2.079%
rasterize_time (ms)	25172.812	24421.873	-2.983%	-3.028%
record_time (ms)	3639.408	2131.299	-41.438%	-52.268%
viewport picture size (bytes)	536914428	300705201.333	-43.994%	-56.400%

#### 5/21/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record time caching disabled (ms)	3625.221	4292.654	18.411%	16.859%
record_time_painting_disabled (ms)	2352.425	2757.391	17.215%	15.851%

pixels_recorded (pixels)	7726041976.670	7728397526.330	0.030%	0.030%
pixels rasterized (pixels)	10328134583.700	10117409037	-2.040%	-2.061%
rasterize_time (ms)	25373.122	24698.078	-2.660%	-2.696%
record_time (ms)	3631.274	2168.381	-40.286%	-50.448%
viewport_picture_size (bytes)	538936678.667	309242752	-42.620%	-54.162%

#### 5/22/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record time caching disabled (ms)	3621.007	4277.112	18.119%	16.614%
record_time_painting_disabled (ms)	2359.166	2752.411	16.669%	15.386%
pixels recorded (pixels)	7656260380.830	7655206980.670	-0.014%	-0.014%
pixels_rasterized (pixels)	10240955115.700	10026211303	-2.097%	-2.119%
rasterize time (ms)	24981.442	24260.209	-2.887%	-2.929%
record_time (ms)	3626.554	2151.504	-40.674%	-51.057%
viewport picture size (bytes)	535403264	306955772	-42.668%	-54.240%

#### 5/23/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record time caching disabled (ms)	3585.919	4101.985	14.391%	13.425%
record_time_painting_disabled (ms)	2343.558	2666.172	13.766%	12.879%
pixels recorded (pixels)	7643701779.170	7642740554.170	-0.013%	-0.013%
pixels_rasterized (pixels)	10222580565.700	10014442752.300	-2.036%	-2.057%
rasterize time (ms)	25013.419	24319.539	-2.774%	-2.813%
record_time (ms)	3592.603	2078.953	-42.132%	-53.377%
viewport picture size (bytes)	535167497.333	299171573.333	-44.098%	-56.571%

#### 5/24/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record time caching disabled (ms)	3537.742	4100.072	15.895%	14.725%
record_time_painting_disabled (ms)	2302.599	2647.203	14.966%	13.924%
pixels recorded (pixels)	7566249833.830	7565804514.670	-0.006%	-0.006%
pixels_rasterized (pixels)	10117813849	9912484692.330	-2.029%	-2.050%
rasterize time (ms)	24717.345	24008.267	-2.869%	-2.910%
record_time (ms)	3543.330	2079.213	-41.320%	-52.080%
viewport picture size (bytes)	531370064	296932298.667	-44.119%	-56.607%

#### 5/25/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record time caching disabled (ms)	3453.363	4031.103	16.730%	15.438%
record_time_painting_disabled (ms)	2250.602	2578.999	14.592%	13.599%
pixels recorded (pixels)	7490816274	7494326740.500	0.047%	0.047%
pixels_rasterized (pixels)	10016038479.700	9816372043	-1.993%	-2.014%
rasterize time (ms)	24684.090	24011.883	-2.723%	-2.761%
record_time (ms)	3458.992	2017.719	-41.667%	-52.633%
viewport picture size (bytes)	524155498.667	293219649.333	-44.059%	-56.507%

## 5/26/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record time caching disabled (ms)	3542.307	4079.091	15.154%	14.086%
record_time_painting_disabled (ms)	2325.661	2654.072	14.121%	13.190%
pixels recorded (pixels)	7554858412	7555646680.830	0.010%	0.010%
pixels_rasterized (pixels)	10103579969.700	9904038048.330	-1.975%	-1.995%
rasterize time (ms)	24707.918	23958.205	-3.034%	-3.081%

record_time (ms)	3548.292	2054.194	-42.108%	-53.337%
viewport picture size (bytes)	529308844	296176792	-44.045%	-56.484%

#### 5/27/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record_time_caching_disabled (ms)	3637.627	4167.680	14.571%	13.582%
record time painting disabled (ms)	2363.036	2691.181	13.887%	12.985%
pixels_recorded (pixels)	7710849671.500	7714268305.670	0.044%	0.044%
pixels rasterized (pixels)	10313047470.300	10101748393.700	-2.049%	-2.070%
rasterize_time (ms)	25035.913	24359.783	-2.701%	-2.738%
record_time (ms)	3643.509	2086.404	-42.736%	-54.350%
viewport_picture_size (bytes)	538417745.333	301708118.667	-43.964%	-56.351%

#### 5/30/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record_time_caching_disabled (ms)	3623.246	4284.746	18.257%	16.730%
record time painting disabled (ms)	2432.503	2871.728	18.057%	16.561%
pixels_recorded (pixels)	7707631332.670	7713775650.670	0.080%	0.080%
pixels rasterized (pixels)	10312223671.700	10098815927.700	-2.069%	-2.091%
rasterize_time (ms)	25037.221	24332.517	-2.815%	-2.855%
viewport picture size (bytes)	510414172	453343728	-11.181%	-11.843%
record time (ms)	3629.469	2309.758	-36.361%	-44.441%

#### 5/31/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record time painting disabled (ms)	2428.959	2881.590	18.635%	17.047%
record_time_caching_disabled (ms)	3586.674	4248.294	18.447%	16.889%

pixels_recorded (pixels)	7666467396.170	7663120815.500	-0.044%	-0.044%
pixels rasterized (pixels)	10249707097	10035678809	-2.088%	-2.110%
rasterize_time (ms)	24812.427	24116.992	-2.803%	-2.843%
viewport picture size (bytes)	507372970.667	450961793.333	-11.118%	-11.773%
record_time (ms)	3592.667	2310.186	-35.697%	-43.453%

## 6/1/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record time painting disabled (ms)	2342.608	2739.088	16.925%	15.604%
record_time_caching_disabled (ms)	3538.881	4113.120	16.227%	15.009%
pixels recorded (pixels)	7610026799.330	7612441622.670	0.032%	0.032%
pixels_rasterized (pixels)	10182979649	9968683755.670	-2.104%	-2.127%
rasterize time (ms)	24605.974	23912.073	-2.820%	-2.860%
viewport_picture_size (bytes)	504876606.667	449104986.667	-11.047%	-11.692%
record time (ms)	3544.249	2201.152	-37.895%	-46.754%

## 6/2/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record time painting disabled (ms)	2339.561	2722.784	16.380%	15.140%
record time caching disabled (ms)	3573.275	4135.606	15.737%	14.589%
pixels recorded (pixels)	7568103277	7565047620	-0.040%	-0.040%
pixels_rasterized (pixels)	10118293081	9904368648.330	-2.114%	-2.137%
rasterize time (ms)	24552.994	23848.460	-2.869%	-2.911%
viewport_picture_size (bytes)	508479052	445359933.333	-12.413%	-13.235%
record_time (ms)	3578.769	2172.827	-39.286%	-48.889%

#### 6/3/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record time caching disabled (ms)	3541.046	4235.575	19.614%	17.862%
record_time_painting_disabled (ms)	2337.165	2737.974	17.149%	15.795%
pixels recorded (pixels)	7720269676.170	7720976094.330	0.009%	0.009%
pixels_rasterized (pixels)	10321667673	10112117768.300	-2.030%	-2.051%
rasterize time (ms)	25007.453	24316.976	-2.761%	-2.800%
viewport picture size (bytes)	511161140	454319077.333	-11.120%	-11.775%
record_time (ms)	3546.852	2165.851	-38.936%	-48.348%

#### 6/4/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record_time_caching_disabled (ms)	3562.933	4264.075	19.679%	17.916%
record time painting disabled (ms)	2396.313	2812.395	17.363%	15.976%
pixels_recorded (pixels)	7712870428	7711454453.500	-0.018%	-0.018%
pixels rasterized (pixels)	10320078446.300	10241490039.700	-0.762%	-0.764%
rasterize_time (ms)	25024.797	24471.173	-2.212%	-2.237%
viewport picture size (bytes)	510471184	481449316	-5.685%	-5.852%
record_time (ms)	3568.628	2263.183	-36.581%	-44.770%

#### 6/5/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record_time_caching_disabled (ms)	3530.836	4259.934	20.649%	18.717%
record time painting disabled (ms)	2339.441	2773.306	18.546%	16.972%
pixels_recorded (pixels)	7614563617.670	7613088237.670	-0.019%	-0.019%
pixels rasterized (pixels)	10194896233.700	10117034094.300	-0.764%	-0.767%
rasterize time (ms)	24834.937	24271.100	-2.270%	-2.296%

viewport_picture_size (bytes)	503609665.333	474968333.333	-5.687%	-5.854%
record_time (ms)	3536.280	2234.390	-36.815%	-45.121%

## 6/6/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record_time_painting_disabled (ms)	2403.649	2842.916	18.275%	16.745%
record time caching disabled (ms)	3687.289	4333.618	17.529%	16.116%
pixels_recorded (pixels)	7647906079.670	7646356729.170	-0.020%	-0.020%
pixels rasterized (pixels)	10228106507	10156703902.300	-0.698%	-0.701%
rasterize_time (ms)	24806.874	24254.711	-2.226%	-2.251%
viewport picture size (bytes)	505180408	476834134.667	-5.611%	-5.773%
record_time (ms)	3692.963	2253.478	-38.979%	-48.415%

#### 6/7/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record_time_caching_disabled (ms)	3657.584	4349.808	18.926%	17.290%
record time painting disabled (ms)	2393.810	2835.630	18.457%	16.897%
pixels_recorded (pixels)	7714357534.670	7716279977.830	0.025%	0.025%
pixels rasterized (pixels)	10326551805	10255127719.700	-0.692%	-0.694%
rasterize_time (ms)	25151.499	24601.931	-2.185%	-2.209%
viewport picture size (bytes)	511152717.333	482301004	-5.644%	-5.808%
record_time (ms)	3663.426	2255.185	-38.441%	-47.587%

#### 6/8/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record time caching disabled (ms)	3691.141	4339.801	17.573%	16.154%
record_time_painting_disabled (ms)	2437.354	2856.688	17.204%	15.842%

pixels_recorded (pixels)	7727077052.170	7724900724	-0.028%	-0.028%
pixels_rasterized (pixels)	10331054664.300	10265803336.300	-0.632%	-0.634%
rasterize_time (ms)	25084.707	24526.603	-2.225%	-2.250%
viewport picture size (bytes)	518040570.667	482289886.667	-6.901%	-7.148%
record_time (ms)	3696.883	2245.116	-39.270%	-48.865%

## 6/10/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record time construction disabled (ms)	0	2408.845	0%	200%
record_time_caching_disabled (ms)	3495.852	4059.221	16.115%	14.914%
record time painting disabled (ms)	2350.530	2709.743	15.282%	14.197%
pixels_recorded (pixels)	7672962077	7677173845	0.055%	0.055%
pixels rasterized (pixels)	10274227071	10074236045	-1.947%	-1.966%
rasterize_time (ms)	24595.385	23943.099	-2.652%	-2.688%
viewport picture size (bytes)	489852552	435465272	-11.103%	-11.755%
record_time (ms)	3498.908	2135.552	-38.965%	-48.393%
record time sk null canvas (ms)	3188.901	0	-100%	-200%

## 6/11/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record time construction disabled (ms)	0	2462.647	0%	200%
record time painting disabled (ms)	2399.222	2781.838	15.947%	14.770%
record time caching disabled (ms)	3558.538	4124.323	15.899%	14.729%
pixels_recorded (pixels)	7720490466	7716900859.330	-0.046%	-0.047%
pixels rasterized (pixels)	10324351835	10107745205	-2.098%	-2.120%
rasterize_time (ms)	25096.213	24391.115	-2.810%	-2.850%
viewport picture size (bytes)	509321461.333	454501362.667	-10.763%	-11.376%

record_time (ms)	3561.923	2204.189	-38.118%	-47.094%
record time sk null canvas (ms)	3251.742	0	-100%	-200%

## 6/12/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record_time_construction_disabled (ms)	0	2480.325	0%	200%
record time caching disabled (ms)	3616.897	4237.353	17.154%	15.799%
record_time_painting_disabled (ms)	2420.503	2827.510	16.815%	15.511%
pixels recorded (pixels)	7734865004.170	7737161562.170	0.030%	0.030%
pixels_rasterized (pixels)	10353761025	10125055309	-2.209%	-2.234%
rasterize time (ms)	25265.645	24527.916	-2.920%	-2.963%
viewport_picture_size (bytes)	510832801.333	455178446.667	-10.895%	-11.523%
record time (ms)	3620.058	2234.646	-38.270%	-47.326%
record_time_sk_null_canvas (ms)	3300.270	0	-100%	-200%

#### 6/13/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record_time_construction_disabled (ms)	0	2449.936	0%	200%
record time caching disabled (ms)	3563.939	4213.399	18.223%	16.701%
record_time_painting_disabled (ms)	2375.855	2766.615	16.447%	15.197%
pixels recorded (pixels)	7642143257.330	7642477045.500	0.004%	0.004%
pixels_rasterized (pixels)	10226892583	10004872226.300	-2.171%	-2.195%
rasterize time (ms)	24837.129	24150.234	-2.766%	-2.804%
viewport picture size (bytes)	505061385.333	450244106.667	-10.854%	-11.476%
record time (ms)	3567.190	2195.195	-38.462%	-47.619%
record_time_sk_null_canvas (ms)	3230.263	0	-100%	-200%

#### 6/14/15 cluster telemetry run

N/A - We turned Slimming paint on

#### 6/15/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record_time_construction_disabled (ms)	0	2466.401	0%	200%
record time caching disabled (ms)	3573.898	4209.921	17.796%	16.342%
record_time_painting_disabled (ms)	2398.177	2793.442	16.482%	15.227%
pixels recorded (pixels)	7644900548.330	7645783636.170	0.012%	0.012%
pixels_rasterized (pixels)	10226069092.300	10010261002.300	-2.110%	-2.133%
rasterize time (ms)	24845.553	24169.518	-2.721%	-2.758%
viewport_picture_size (bytes)	504912973.333	449373921.333	-11.000%	-11.640%
record time (ms)	3577.106	2213.671	-38.116%	-47.090%
record_time_sk_null_canvas (ms)	3243.973	0	-100%	-200%

#### 6/16/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record_time_construction_disabled (ms)	0	2489.187	0%	200%
record time caching disabled (ms)	3597.380	4318.998	20.060%	18.231%
record_time_painting_disabled (ms)	2418.832	2839.085	17.374%	15.986%
pixels recorded (pixels)	7713842252.330	7715147324.170	0.017%	0.017%
pixels_rasterized (pixels)	10323774986.300	10098486021.700	-2.182%	-2.206%
rasterize time (ms)	25138.790	24415.022	-2.879%	-2.921%
viewport_picture_size (bytes)	508382969.333	453126234.667	-10.869%	-11.494%
record time (ms)	3600.723	2251.533	-37.470%	-46.108%
record_time_sk_null_canvas (ms)	3250.009	0	-100%	-200%

#### 6/17/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record time construction disabled (ms)	0	2468.964	0%	200%
record_time_caching_disabled (ms)	3576.770	4136.614	15.652%	14.516%
record time painting disabled (ms)	2400.651	2773.111	15.515%	14.398%
pixels_recorded (pixels)	7655716500.170	7653408117.830	-0.030%	-0.030%
pixels rasterized (pixels)	10239834487.700	10012246391.700	-2.223%	-2.248%
rasterize_time (ms)	25051.441	24338.985	-2.844%	-2.885%
viewport_picture_size (bytes)	504916292	449554184	-10.965%	-11.601%
record_time (ms)	3580.319	2213.621	-38.173%	-47.177%
record time sk null canvas (ms)	3205.623	0	-100%	-200%

## 6/18/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record_time_construction_disabled (ms)	0	2486.930	0%	200%
record time caching disabled (ms)	3586.249	4260.223	18.793%	17.179%
record_time_painting_disabled (ms)	2416.531	2846.135	17.778%	16.326%
pixels recorded (pixels)	7694193743.500	7696091443.500	0.025%	0.025%
pixels_rasterized (pixels)	10293239486.300	10068773817.700	-2.181%	-2.205%
rasterize time (ms)	25078.676	24384.211	-2.769%	-2.808%
viewport_picture_size (bytes)	507718740	452555905.333	-10.865%	-11.489%
record time (ms)	3589.554	2193.979	-38.879%	-48.260%
record_time_sk_null_canvas (ms)	3242.148	0	-100%	-200%

#### 6/19/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record_time_construction_disabled (ms)	0	2449.496	0%	200%

record_time_caching_disabled (ms)	3547.860	4175.336	17.686%	16.249%
record time painting disabled (ms)	2388.129	2766.924	15.862%	14.696%
pixels_recorded (pixels)	7658185033.170	7659467184.830	0.017%	0.017%
pixels rasterized (pixels)	10244579657.700	10020579662.300	-2.187%	-2.211%
rasterize_time (ms)	25003.950	24266.864	-2.948%	-2.992%
viewport picture size (bytes)	505756877.333	450717344	-10.883%	-11.509%
record_time (ms)	3551.495	2193.171	-38.247%	-47.290%
record time sk null canvas (ms)	3208.374	0	-100%	-200%

#### 6/20/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record_time_construction_disabled (ms)	0	2447.726	0%	200%
record time caching disabled (ms)	3585.474	4201.973	17.194%	15.833%
record_time_painting_disabled (ms)	2387.614	2769.452	15.992%	14.808%
pixels recorded (pixels)	7739124698	7734653208.830	-0.058%	-0.058%
pixels_rasterized (pixels)	10349446268.300	10117575207	-2.240%	-2.266%
rasterize time (ms)	25303.308	24547.811	-2.986%	-3.031%
viewport_picture_size (bytes)	510613617.333	454916545.333	-10.908%	-11.537%
record time (ms)	3588.623	2206.092	-38.525%	-47.717%
record_time_sk_null_canvas (ms)	3238.576	0	-100%	-200%

#### 6/21/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record_time_construction_disabled (ms)	0	2404.177	0%	200%
record time caching disabled (ms)	3485.603	4107.519	17.842%	16.381%
record_time_painting_disabled (ms)	2344.578	2731.138	16.487%	15.232%
pixels recorded (pixels)	7583558612.330	7579428147.330	-0.054%	-0.054%

pixels_rasterized (pixels)	10143404407.700	9911572173	-2.286%	-2.312%
rasterize time (ms)	24744.440	24011.930	-2.960%	-3.005%
viewport picture size (bytes)	500612724	446081612	-10.893%	-11.520%
record_time (ms)	3489.012	2179.201	-37.541%	-46.216%
record time sk null canvas (ms)	3151.514	0	-100%	-200%

## 6/22/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record time construction disabled (ms)	0	2445.212	0%	200%
record_time_caching_disabled (ms)	3534.649	4173.330	18.069%	16.572%
record time painting disabled (ms)	2370.424	2762.968	16.560%	15.294%
pixels_recorded (pixels)	7721928583.670	7722758031.170	0.011%	0.011%
pixels rasterized (pixels)	10329112074.300	10113175230.300	-2.091%	-2.113%
rasterize_time (ms)	25356.438	24631.405	-2.859%	-2.901%
viewport picture size (bytes)	509444161.333	453937209.333	-10.896%	-11.523%
record_time (ms)	3537.823	2192.958	-38.014%	-46.935%
record time sk null canvas (ms)	3188.011	0	-100%	-200%

## 6/23/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record time construction disabled (ms)	0	2442.414	0%	200%
record_time_caching_disabled (ms)	3523.913	4129.915	17.197%	15.835%
record time painting disabled (ms)	2377.953	2736.973	15.098%	14.038%
pixels_recorded (pixels)	7761697472.330	7760495818.830	-0.015%	-0.015%
pixels rasterized (pixels)	10361028286.300	10139686410.300	-2.136%	-2.159%
rasterize_time (ms)	25287.169	24566.836	-2.849%	-2.890%
viewport picture size (bytes)	510588134.667	454788066.667	-10.929%	-11.560%

record_time (ms)	3527.168	2178.835	-38.227%	-47.260%
record time sk null canvas (ms)	3189.107	0	-100%	-200%

#### 6/24/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record_time_construction_disabled (ms)	0	2475.191	0%	200%
record time caching disabled (ms)	3591.461	4209.101	17.197%	15.836%
record_time_painting_disabled (ms)	2410.141	2794.194	15.935%	14.759%
pixels recorded (pixels)	7766358120.330	7773525950.500	0.092%	0.092%
pixels_rasterized (pixels)	10367442646.300	10155719633.700	-2.042%	-2.063%
rasterize time (ms)	25267.156	24576.742	-2.732%	-2.770%
viewport_picture_size (bytes)	511399858.667	455595642.667	-10.912%	-11.542%
record time (ms)	3594.649	2218.004	-38.297%	-47.367%
record_time_sk_null_canvas (ms)	3246.794	0	-100%	-200%

#### 6/25/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record_time_construction_disabled (ms)	0	2562.764	0%	200%
record time caching disabled (ms)	3702.595	4322.963	16.755%	15.460%
record_time_painting_disabled (ms)	2503.005	2865.141	14.468%	13.492%
pixels recorded (pixels)	7725544109.830	7724871229.830	-0.009%	-0.009%
pixels_rasterized (pixels)	10332154914.300	10114513267	-2.106%	-2.129%
rasterize time (ms)	25201.135	24493.453	-2.808%	-2.848%
viewport picture size (bytes)	510078125.333	454494305.333	-10.897%	-11.525%
record time (ms)	3705.772	2288.401	-38.248%	-47.292%
record time sk null canvas (ms)	3372.829	0	-100%	-200%

## 6/26/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record time construction disabled (ms)	0	3166.955	0%	200%
record time caching disabled (ms)	4552.733	5328.891	17.048%	15.709%
record time painting disabled (ms)	3074.593	3565.208	15.957%	14.778%
pixels_recorded (pixels)	7260754491.170	7265266117.170	0.062%	0.062%
pixels rasterized (pixels)	9715724999.670	9516956359.670	-2.046%	-2.067%
rasterize time (ms)	23738.738	23073.132	-2.804%	-2.844%
viewport picture size (bytes)	613307938.667	556501573.333	-9.262%	-9.712%
record_time (ms)	4556.442	2830.880	-37.871%	-46.717%
record time sk null canvas (ms)	4134.921	0	-100%	-200%

## 6/27/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record_time_construction_disabled (ms)	0	3333.821	0%	200%
record time caching disabled (ms)	4737.407	5536.540	16.869%	15.556%
record_time_painting_disabled (ms)	3207.972	3703.956	15.461%	14.352%
pixels recorded (pixels)	7567326583	7569029029.500	0.022%	0.022%
pixels_rasterized (pixels)	10118563533	9907361485	-2.087%	-2.109%
rasterize time (ms)	24652.813	23944.782	-2.872%	-2.914%
viewport_picture_size (bytes)	638419084	580007092	-9.149%	-9.588%
record time (ms)	4740.868	2952.881	-37.714%	-46.479%
record_time_sk_null_canvas (ms)	4303.710	0	-100%	-200%

#### 6/28/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record_time_construction_disabled (ms)	0	3331.189	0%	200%

record_time_caching_disabled (ms)	4689.436	5494.309	17.164%	15.807%
record time painting disabled (ms)	3211.771	3685.806	14.759%	13.745%
pixels_recorded (pixels)	7578252095.670	7578951059.170	0.009%	0.009%
pixels rasterized (pixels)	10130447574.300	9923103185.670	-2.047%	-2.068%
rasterize_time (ms)	24637.857	23926.528	-2.887%	-2.929%
viewport picture size (bytes)	639921400	581561534.667	-9.120%	-9.556%
record_time (ms)	4692.776	2973.808	-36.630%	-44.843%
record time sk null canvas (ms)	4256.398	0	-100%	-200%

## 6/29/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record_time_construction_disabled (ms)	0	3244.033	0%	200%
record time caching disabled (ms)	4613.510	5405.994	17.177%	15.819%
record_time_painting_disabled (ms)	3134.959	3583.643	14.312%	13.356%
pixels recorded (pixels)	7486375137	7485545381.500	-0.011%	-0.011%
pixels_rasterized (pixels)	10010335607.700	9803835265	-2.063%	-2.084%
rasterize time (ms)	24259.485	23569.057	-2.846%	-2.887%
viewport_picture_size (bytes)	631265466.667	573803465.333	-9.103%	-9.537%
record time (ms)	4617.293	2856.906	-38.126%	-47.106%
record_time_sk_null_canvas (ms)	4224.123	0	-100%	-200%

#### 6/30/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record_time_construction_disabled (ms)	0	3293.844	0%	200%
record time caching disabled (ms)	4730.778	5469.219	15.609%	14.479%
record_time_painting_disabled (ms)	3201.561	3653.177	14.106%	13.177%
pixels recorded (pixels)	7736817834	7732816052	-0.052%	-0.052%

pixels_rasterized (pixels)	10347251300.300	10128974863	-2.110%	-2.132%
rasterize time (ms)	25144.789	24422.375	-2.873%	-2.915%
viewport_picture_size (bytes)	653726620	594082050.667	-9.124%	-9.560%
record_time (ms)	4734.832	2883.828	-39.093%	-48.591%
record time sk null canvas (ms)	4353.878	0	-100%	-200%

## 7/1/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record time construction disabled (ms)	0	3301.138	0%	200%
record_time_caching_disabled (ms)	4741.640	5593.506	17.966%	16.485%
record time painting disabled (ms)	3187.651	3676.495	15.336%	14.243%
pixels_recorded (pixels)	7732049222.330	7732041826.330	0.000%	0.000%
pixels rasterized (pixels)	10341982673.700	10126142678.300	-2.087%	-2.109%
rasterize_time (ms)	25218.508	24504.075	-2.833%	-2.874%
viewport picture size (bytes)	652486934.667	592932750.667	-9.127%	-9.564%
record_time (ms)	4745.156	3033.609	-36.069%	-44.006%
record time sk null canvas (ms)	4297.963	0	-100%	-200%

## 7/1/15 cluster telemetry run (2)

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record time construction disabled (ms)	0	3239.210	0%	200%
record_time_caching_disabled (ms)	4731.402	5429.407	14.753%	13.739%
record time painting disabled (ms)	3144.290	3602.369	14.569%	13.579%
pixels_recorded (pixels)	8024906789.500	8022407759.830	-0.031%	-0.031%
pixels rasterized (pixels)	10708665769	10393795167	-2.940%	-2.984%
rasterize_time (ms)	25279.034	24444.626	-3.301%	-3.356%
viewport picture size (bytes)	640168238.667	574292081.333	-10.290%	-10.849%

record_time (ms)	4734.948	2986.081	-36.935%	-45.301%
record time sk null canvas (ms)	4311.066	0	-100%	-200%

## 7/2/15 cluster telmetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record_time_construction_disabled (ms)	0	3139.480	0%	200%
record time caching disabled (ms)	4517.283	5245.484	16.120%	14.918%
record_time_painting_disabled (ms)	3038.289	3478.637	14.493%	13.514%
pixels recorded (pixels)	8021322169.500	8025471340.830	0.052%	0.052%
pixels_rasterized (pixels)	10696158453	10388167263	-2.879%	-2.922%
rasterize time (ms)	25479.371	24651.454	-3.249%	-3.303%
viewport_picture_size (bytes)	617942166.667	552061313.333	-10.661%	-11.262%
record time (ms)	4521.114	2858.442	-36.776%	-45.062%
record_time_sk_null_canvas (ms)	4100.735	0	-100%	-200%

#### 7/3/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record_time_construction_disabled (ms)	0	3025.369	0%	200%
record time caching disabled (ms)	4553.943	5246.713	15.213%	14.137%
record_time_painting_disabled (ms)	2986.198	3354.360	12.329%	11.613%
pixels recorded (pixels)	8008596062.830	8006175182.170	-0.030%	-0.030%
pixels_rasterized (pixels)	10689388717.700	10374742533	-2.944%	-2.988%
rasterize time (ms)	25376.351	24589.614	-3.100%	-3.149%
viewport_picture_size (bytes)	617182638.667	551378688	-10.662%	-11.262%
record_time (ms)	4557.413	2740.524	-39.867%	-49.792%
record_time_sk_null_canvas (ms)	4113.407	0	-100%	-200%

## 7/3/15 cluster telemetry run (midday)

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record time construction disabled (ms)	0	3001.116	0%	200%
record_time_caching_disabled (ms)	4491.936	5068.549	12.837%	12.062%
record time painting disabled (ms)	2969.008	3328.326	12.102%	11.412%
pixels_recorded (pixels)	7979907047.500	7982494177.330	0.032%	0.032%
pixels rasterized (pixels)	10632536740.300	10321616730.300	-2.924%	-2.968%
rasterize_time (ms)	25263.741	24462.719	-3.171%	-3.222%
viewport picture size (bytes)	616146586.667	550264114.667	-10.693%	-11.297%
record_time (ms)	4495.479	2697.453	-39.996%	-49.994%
record time sk null canvas (ms)	4082.881	0	-100%	-200%

## 7/4/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record_time_construction_disabled (ms)	0	3111.869	0%	200%
record time caching disabled (ms)	4590.349	5289.815	15.238%	14.159%
record_time_painting_disabled (ms)	3070.521	3459.322	12.662%	11.908%
pixels recorded (pixels)	8008864341.500	8012674436.670	0.048%	0.048%
pixels_rasterized (pixels)	10695282089	10383800927	-2.912%	-2.955%
rasterize time (ms)	25448.013	24632.691	-3.204%	-3.256%
viewport_picture_size (bytes)	638873904	572690825.333	-10.359%	-10.925%
record_time (ms)	4594.193	2844.418	-38.087%	-47.046%
record_time_sk_null_canvas (ms)	4160.842	0	-100%	-200%

#### 7/6/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record_time_construction_disabled (ms)	0	3101.808	0%	200%

record time caching disabled (ms)	4560.434	5232.983	14.747%	13.735%
record time painting disabled (ms)	3051.538	3427.003	12.304%	11.591%
pixels_recorded (pixels)	8019665885.670	8020113934.170	0.006%	0.006%
pixels rasterized (pixels)	10709462351	10394720180.300	-2.939%	-2.983%
rasterize_time (ms)	25511.423	24668.851	-3.303%	-3.358%
viewport picture size (bytes)	640356188	574745032	-10.246%	-10.799%
record_time (ms)	4564.089	2722.464	-40.350%	-50.549%
record time sk null canvas (ms)	4131.046	0	-100%	-200%

## 7/6/15 cluster telemetry run (android)

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record_time_construction_disabled (ms)	0	18490.517	0%	200%
record time caching disabled (ms)	28380.631	34170.138	20.400%	18.511%
record_time_painting_disabled (ms)	18018.933	20728.000	15.035%	13.983%
pixels recorded (pixels)	6261450016.670	6269262142	0.125%	0.125%
rasterize_time (ms)	163484.124	157615.859	-3.590%	-3.655%
pixels rasterized (pixels)	8956767575.330	8553391719.330	-4.504%	-4.607%
viewport_picture_size (bytes)	316000683.333	285337912.667	-9.703%	-10.198%
record time (ms)	28411.359	17037.232	-40.034%	-50.053%
record_time_sk_null_canvas (ms)	25795.520	0	-100%	-200%

#### 7/8/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record_time_construction_disabled (ms)	0	2970.617	0%	200%
record time caching disabled (ms)	4361.285	5042.021	15.609%	14.479%
record_time_painting_disabled (ms)	2920.669	3269.169	11.932%	11.260%
pixels recorded (pixels)	7937308217.170	7939057136.500	0.022%	0.022%

pixels_rasterized (pixels)	10591935368.300	10291411006.300	-2.837%	-2.878%
rasterize time (ms)	25135.254	24319.475	-3.246%	-3.299%
viewport_picture_size (bytes)	634554093.333	569255676	-10.290%	-10.849%
record_time (ms)	4364.826	2603.453	-40.354%	-50.554%
record time sk null canvas (ms)	3945.843	0	-100%	-200%

## 7/9/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record time construction disabled (ms)	0	2939.565	0%	200%
viewport_picture_size (bytes)	644592670.667	799722929.333	24.066%	21.481%
record time caching disabled (ms)	4416.415	5120.800	15.949%	14.771%
record_time_painting_disabled (ms)	2918.561	3261.327	11.744%	11.093%
pixels recorded (pixels)	8022276848.670	8017040557	-0.065%	-0.065%
pixels_rasterized (pixels)	10696476357	10384381477.700	-2.918%	-2.961%
rasterize time (ms)	25332.132	24543.566	-3.113%	-3.162%
record_time (ms)	4420.065	2621.865	-40.683%	-51.071%
record time sk null canvas (ms)	3979.349	0	-100%	-200%

## 7/10/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record time construction disabled (ms)	0	2971.319	0%	200%
viewport_picture_size (bytes)	632934134.667	793077749.333	25.302%	22.460%
record time caching disabled (ms)	4402.984	5076.598	15.299%	14.212%
record_time_painting_disabled (ms)	2933.346	3297.298	12.407%	11.683%
pixels recorded (pixels)	7916308169.670	7920803498	0.057%	0.057%
pixels_rasterized (pixels)	10577647963	10274866112.300	-2.862%	-2.904%
rasterize time (ms)	25040.256	24262.467	-3.106%	-3.155%

record_time (ms)	4407.275	2590.132	-41.231%	-51.938%
record time sk null canvas (ms)	3962.500	0	-100%	-200%

## 7/11/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record_time_construction_disabled (ms)	0	2943.149	0%	200%
viewport picture size (bytes)	634211690.667	794283789.333	25.240%	22.411%
record_time_caching_disabled (ms)	4356.241	4973.484	14.169%	13.232%
record time painting disabled (ms)	2908.432	3229.601	11.043%	10.465%
pixels_recorded (pixels)	7976076340.670	7973200922.830	-0.036%	-0.036%
pixels rasterized (pixels)	10619160351	10306082341.700	-2.948%	-2.992%
rasterize_time (ms)	25123.962	24335.200	-3.139%	-3.190%
record time (ms)	4359.339	2572.871	-40.980%	-51.541%
record_time_sk_null_canvas (ms)	3920.968	0	-100%	-200%

#### 7/12/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record_time_construction_disabled (ms)	0	2952.128	0%	200%
viewport picture size (bytes)	639630960	802202326.667	25.416%	22.551%
record_time_caching_disabled (ms)	4373.285	5008.982	14.536%	13.551%
record time painting disabled (ms)	2912.308	3243.871	11.385%	10.772%
pixels_recorded (pixels)	8051375980	8051391627.500	0.000%	0.000%
pixels rasterized (pixels)	10726769097.700	10410366861.700	-2.950%	-2.994%
rasterize_time (ms)	25430.749	24617.459	-3.198%	-3.250%
record time (ms)	4376.671	2591.512	-40.788%	-51.237%
record time sk null canvas (ms)	3930.435	0	-100%	-200%

#### 7/13/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record time construction disabled (ms)	0	2936.002	0%	200%
viewport_picture_size (bytes)	638249689.333	800092449.333	25.357%	22.504%
record time caching disabled (ms)	4402.405	5083.204	15.464%	14.354%
record time painting disabled (ms)	2903.123	3238.020	11.536%	10.907%
pixels recorded (pixels)	8033755127.330	8038741338	0.062%	0.062%
pixels_rasterized (pixels)	10707743950.300	10400926677	-2.865%	-2.907%
rasterize time (ms)	25480.141	24704.834	-3.043%	-3.090%
record_time (ms)	4405.985	2598.528	-41.023%	-51.608%
record time sk null canvas (ms)	3973.578	0	-100%	-200%

## 7/14/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record_time_construction_disabled (ms)	0	2978.420	0%	200%
viewport picture size (bytes)	639814441.333	801474046.667	25.267%	22.433%
record_time_caching_disabled (ms)	4471.118	5091.035	13.865%	12.966%
record time painting disabled (ms)	2945.221	3289.286	11.682%	11.037%
pixels_recorded (pixels)	8053096633.500	8050663497.670	-0.030%	-0.030%
pixels rasterized (pixels)	10729910137	10417193258.300	-2.914%	-2.958%
rasterize_time (ms)	25527.438	24759.223	-3.009%	-3.055%
record time (ms)	4474.885	2623.987	-41.362%	-52.146%
record_time_sk_null_canvas (ms)	4054.804	0	-100%	-200%

#### 7/15/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record time construction disabled (ms)	0	2257.907	0%	200%

viewport picture size (bytes)	510478038.667	676818161.333	32.585%	28.020%
record time caching disabled (ms)	3382.943	3830.736	13.237%	12.415%
record time painting disabled (ms)	2225.905	2517.071	13.081%	12.278%
pixels recorded (pixels)	8044813713.330	8041268628.500	-0.044%	-0.044%
pixels_rasterized (pixels)	10716027337.700	10404315524.300	-2.909%	-2.952%
rasterize time (ms)	25359.646	24557.752	-3.162%	-3.213%
record_time (ms)	3385.820	2005.894	-40.756%	-51.187%
record time sk null canvas (ms)	3020.644	0	-100%	-200%

## 7/16/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record_time_construction_disabled (ms)	0	2246.322	0%	200%
viewport picture size (bytes)	510043364	684695040	34.243%	29.237%
record_time_caching_disabled (ms)	3366.297	3935.206	16.900%	15.583%
record time painting disabled (ms)	2207.176	2557.937	15.892%	14.722%
pixels_recorded (pixels)	8036688664.830	8035143414	-0.019%	-0.019%
pixels rasterized (pixels)	10708915136.300	10394446805	-2.937%	-2.980%
rasterize_time (ms)	25311.048	24529.277	-3.089%	-3.137%
record_time (ms)	3369.608	2091.322	-37.936%	-46.816%
record_time_sk_null_canvas (ms)	3004.630	0	-100%	-200%

#### 7/17/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record_time_construction_disabled (ms)	0	2269.140	0%	200%
viewport picture size (bytes)	510525876	677082672	32.625%	28.049%
record_time_caching_disabled (ms)	3391.845	3854.334	13.635%	12.765%
record time painting disabled (ms)	2242.537	2531.838	12.901%	12.119%

pixels_recorded (pixels)	8031114434.830	8022616619.670	-0.106%	-0.106%
pixels rasterized (pixels)	10709659243	10395293401.700	-2.935%	-2.979%
rasterize_time (ms)	25413.510	24619.745	-3.123%	-3.173%
record_time (ms)	3395.155	2011.778	-40.746%	-51.171%
record time sk null canvas (ms)	3025.571	0	-100%	-200%

## 7/18/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record time construction disabled (ms)	0	2269.996	0%	200%
viewport_picture_size (bytes)	504338408	1020417902.670	102.328%	67.693%
record time caching disabled (ms)	3402.628	3899.022	14.589%	13.597%
record_time_painting_disabled (ms)	2242.303	2542.521	13.389%	12.549%
pixels recorded (pixels)	7923991977.670	7920895021.500	-0.039%	-0.039%
pixels_rasterized (pixels)	10558374528.300	10246720831.700	-2.952%	-2.996%
rasterize time (ms)	24968.929	24190.250	-3.119%	-3.168%
record_time (ms)	3405.929	1990.286	-41.564%	-52.468%
record time sk null canvas (ms)	3076.703	0	-100%	-200%

## 7/19/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record time construction disabled (ms)	0	2248.316	0%	200%
viewport_picture_size (bytes)	499602833.333	1010379677.330	102.237%	67.653%
record time caching disabled (ms)	3367.970	3859.199	14.585%	13.594%
record_time_painting_disabled (ms)	2221.822	2517.614	13.313%	12.482%
pixels recorded (pixels)	7835019853.330	7835635098.670	0.008%	0.008%
pixels_rasterized (pixels)	10444158950.300	10137321467	-2.938%	-2.982%
rasterize time (ms)	24639.904	23890.753	-3.040%	-3.087%

record_time (ms)	3371.084	1971.214	-41.526%	-52.407%
record time sk null canvas (ms)	3045.546	0	-100%	-200%

#### 7/20/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record_time_construction_disabled (ms)	0	2260.892	0%	200%
viewport picture size (bytes)	512208230.667	1039021109.330	102.851%	67.922%
record_time_caching_disabled (ms)	3427.471	3875.702	13.078%	12.275%
record time painting disabled (ms)	2232.360	2523.472	13.041%	12.242%
pixels_recorded (pixels)	8053752192.670	8049507602.330	-0.053%	-0.053%
pixels rasterized (pixels)	10735699925.700	10421358660.300	-2.928%	-2.972%
rasterize_time (ms)	25459.364	24665.178	-3.119%	-3.169%
record time (ms)	3430.915	2013.819	-41.304%	-52.054%
record_time_sk_null_canvas (ms)	3099.672	0	-100%	-200%

#### 7/21/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record_time_construction_disabled (ms)	0	2308.861	0%	200%
viewport picture size (bytes)	519104318.667	1051670402.670	102.593%	67.809%
record_time_caching_disabled (ms)	3425.617	4023.364	17.449%	16.049%
record time painting disabled (ms)	2278.527	2611.368	14.608%	13.613%
pixels_recorded (pixels)	8033949814	8036542029	0.032%	0.032%
pixels rasterized (pixels)	10722231002.300	10413294229	-2.881%	-2.923%
rasterize_time (ms)	25406.760	24654.138	-2.962%	-3.007%
record_time (ms)	3428.807	2047.021	-40.299%	-50.469%
record_time_sk_null_canvas (ms)	3118.899	0	-100%	-200%

#### 7/25/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record time construction disabled (ms)	0	2574.470	0%	200%
viewport_picture_size (bytes)	552196898.667	1101596514.670	99.493%	66.441%
record time caching disabled (ms)	3789.214	4323.968	14.113%	13.182%
record_time_painting_disabled (ms)	2545.657	2887.336	13.422%	12.578%
pixels recorded (pixels)	10446018514.500	10442369821.200	-0.035%	-0.035%
pixels_rasterized (pixels)	12952986831.700	12552631937	-3.091%	-3.139%
rasterize time (ms)	30780.262	29597.605	-3.842%	-3.918%
record_time (ms)	3792.715	2279.405	-39.900%	-49.845%
record time sk null canvas (ms)	3424.085	0	-100%	-200%

#### 7/26/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record_time_construction_disabled (ms)	0	2485.377	0%	200%
viewport picture size (bytes)	540336172	1065186178.670	97.134%	65.381%
record_time_caching_disabled (ms)	3655.630	4168.865	14.040%	13.119%
record time painting disabled (ms)	2469.529	2784.421	12.751%	11.987%
pixels_recorded (pixels)	10083705394.800	10083186783.300	-0.005%	-0.005%
pixels rasterized (pixels)	12496319199.700	12113166139.700	-3.066%	-3.114%
rasterize_time (ms)	29736.844	28609.559	-3.791%	-3.864%
record time (ms)	3659.631	2205.797	-39.726%	-49.573%
record_time_sk_null_canvas (ms)	3300.061	0	-100%	-200%

#### 7/27/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
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record_time_construction_disabled (ms)	0	2532.906	0%	200%
viewport picture size (bytes)	541116049.333	1091818017.330	101.772%	67.449%
record_time_caching_disabled (ms)	3678.901	4263.032	15.878%	14.710%
record time painting disabled (ms)	2490.911	2844.229	14.184%	13.245%
pixels_recorded (pixels)	10243078730.800	10247750621.800	0.046%	0.046%
pixels rasterized (pixels)	12692441727	12312320479.700	-2.995%	-3.040%
rasterize_time (ms)	30269.572	29102.036	-3.857%	-3.933%
record_time (ms)	3682.271	2263.475	-38.530%	-47.725%
record_time_sk_null_canvas (ms)	3334.575	0	-100%	-200%

## 7/28/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record time construction disabled (ms)	0	2578.127	0%	200%
viewport_picture_size (bytes)	571980866.667	1113821054.670	94.730%	64.283%
record time caching disabled (ms)	3890.492	4442.110	14.179%	13.240%
record_time_painting_disabled (ms)	2552.110	2911.805	14.094%	13.166%
pixels recorded (pixels)	10424260527.300	10418320231	-0.057%	-0.057%
pixels_rasterized (pixels)	12912165323	12523699338.300	-3.009%	-3.054%
rasterize time (ms)	30943.993	29789.577	-3.731%	-3.802%
record_time (ms)	3893.996	2227.029	-42.809%	-54.467%
record time sk null canvas (ms)	3530.828	0	-100%	-200%

## 7/29/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record time construction disabled (ms)	0	2673.067	0%	200%
viewport picture size (bytes)	549137046.667	1095180777.330	99.437%	66.416%
record time caching disabled (ms)	3894.622	4463.133	14.597%	13.604%

record_time_painting_disabled (ms)	2643.413	2981.229	12.780%	12.012%
pixels recorded (pixels)	10394193355.800	10392621174.500	-0.015%	-0.015%
pixels_rasterized (pixels)	12889990351.700	12501855963	-3.011%	-3.057%
rasterize time (ms)	30862.252	29675.120	-3.847%	-3.922%
record_time (ms)	3899.078	2271.549	-41.741%	-52.751%
record time sk null canvas (ms)	3527.522	0	-100%	-200%

#### 7/30/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record_time_construction_disabled (ms)	0	2552.864	0%	200%
viewport picture size (bytes)	550348392	1096555721.330	99.248%	66.331%
record_time_caching_disabled (ms)	3781.688	4338.907	14.735%	13.724%
record time painting disabled (ms)	2524.372	2859.313	13.268%	12.443%
pixels_recorded (pixels)	10417748454.300	10409458535.500	-0.080%	-0.080%
pixels rasterized (pixels)	12913093157	12520196485.700	-3.043%	-3.090%
rasterize_time (ms)	30980.631	29757.353	-3.949%	-4.028%
record time (ms)	3785.174	2232.863	-41.010%	-51.589%
record_time_sk_null_canvas (ms)	3430.724	0	-100%	-200%

## 7/31/15 cluster telemetry run

Telemetry error

#### 8/1/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record time construction disabled (ms)	0	2543.556	0%	200%
viewport_picture_size (bytes)	543573302.667	1087096438.670	99.991%	66.663%
record time caching disabled (ms)	3743.538	4297.820	14.806%	13.786%
record_time_painting_disabled (ms)	2515.719	2870.293	14.094%	13.167%

pixels_recorded (pixels)	10316064857.500	10315540810	-0.005%	-0.005%
pixels rasterized (pixels)	12785956730.300	12398978186.300	-3.027%	-3.073%
rasterize_time (ms)	30599.621	29363.484	-4.040%	-4.123%
record_time (ms)	3747.163	2233.108	-40.405%	-50.635%
record time sk null canvas (ms)	3378.855	0	-100%	-200%

## 8/2/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record time construction disabled (ms)	0	2488.186	0%	200%
viewport_picture_size (bytes)	542259417.333	1085257665.330	100.136%	66.727%
record time caching disabled (ms)	3668.343	4202.130	14.551%	13.564%d
record_time_painting_disabled (ms)	2461.662	2802.841	13.860%	12.961%
pixels recorded (pixels)	10311741585.500	10302485868.700	-0.090%	-0.090%
pixels_rasterized (pixels)	12773247615	12379425840.300	-3.083%	-3.131%
rasterize time (ms)	30420.852	29235.267	-3.897%	-3.975%
record_time (ms)	3671.499	2185.072	-40.486%	-50.761%
record time sk null canvas (ms)	3317.625	0	-100%	-200%

## 8/3/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record time construction disabled (ms)	0	2533.721	0%	200%
viewport_picture_size (bytes)	543766856	1088071157.330	100.099%	66.711%
record time caching disabled (ms)	3736.111	4302.026	15.147%	14.081%
record_time_painting_disabled (ms)	2500.367	2834.416	13.360%	12.523%
pixels recorded (pixels)	10318336986	10308471005.500	-0.096%	-0.096%
pixels_rasterized (pixels)	12791995509.700	12397947952.300	-3.080%	-3.129%
rasterize time (ms)	30466.880	29217.357	-4.101%	-4.187%

record_time (ms)	3739.532	2217.839	-40.692%	-51.086%
record time sk null canvas (ms)	3377.079	0	-100%	-200%

#### 8/4/15 cluster telemetry run

Fieldname	Total	Total with Patch	Percentage Change	Percentage Difference
record_time_construction_disabled (ms)	0	2617.661	0%	200%
viewport picture size (bytes)	550411614.667	1110780053.330	101.809%	67.466%
record_time_caching_disabled (ms)	3829.616	4505.977	17.661%	16.228%
record time painting disabled (ms)	2574.276	2912.361	13.133%	12.324%
pixels_recorded (pixels)	10424448659	10425051830.500	0.006%	0.006%
pixels rasterized (pixels)	12925245216.300	12539239562.300	-2.986%	-3.032%
rasterize_time (ms)	31054.845	29788.530	-4.078%	-4.163%
record time (ms)	3833.546	2303.006	-39.925%	-49.883%
record_time_sk_null_canvas (ms)	3474.444	0	-100%	-200%

#### Measuring the performance of the display item cache

See: https://codereview.chromium.org/1018053003

Cluster telemetry run from 3/18/15: cache-disabled performance

Chrome rev: e9fcf4b

Both "with" and "without patch" have --enable-slimming-paint. "With patch" has

slimmingPaintDisplayItemCache disabled.

#### Perf dashboard results

rasterize\_and\_record\_mico.top\_25\_slimming\_paint\_smooth:

https://chromeperf.appspot.com/report?masters=ChromiumPerf&bots=android-motoe%2Clinux-release&tests=rasterize\_and\_record\_micro.top\_25\_slimming\_paint\_smooth%2Frecord\_time&checked=record\_time%2Cref

rasterize\_and\_record\_micro key silk cases with slimming paint:

https://chromeperf.appspot.com/report?masters=ChromiumPerf&bots=linux-release&tests=rasterize\_and\_record\_micro.key\_silk\_cases\_with\_slimming\_paint%2Fviewport\_picture\_size&checked=viewport\_picture\_size%2Cref

#### draw\_properties.tough\_scrolling:

https://chromeperf.appspot.com/report?masters=ChromiumPerf&bots=chromium-rel-mac9%2Clinux-release&tests=draw\_properties.tough\_scrolling%2FCDP\_reduction&checked=CDP\_reduction%2CCDP\_reduction

#### draw\_properties.top\_25:

https://chromeperf.appspot.com/report?masters=ChromiumPerf&bots=chromium-rel-mac9%2Clinux-release&tests=draw\_properties.top\_25%2FCDP\_reduction&checked=CDP\_reduction%2CCDP\_reduction

#### memory.top\_7\_stress\_slimming\_paint:

https://chromeperf.appspot.com/report?masters=ChromiumPerf&bots=chromium-rel-mac9%2Clinux-release&tests=memory.top\_7\_stress\_slimming\_paint%2Fvm\_final\_size\_renderer&checked=Blogger%2CBlogger\_ref%2CFacebook%2CFacebook\_ref%2CWordpress%2CWordpress\_ref%2Chttps\_\_mail.google.com\_mail\_ref%2Chttps\_\_plus.google.com\_mail\_ref%2Chttps\_\_plus.google.com\_110031535020051778989\_posts%2Chttps\_\_plus.google.com\_110031535020051778989\_posts\_ref%2Chttps\_\_www.google.com\_hl\_en\_q\_barack%2Bobama\_ref%2Chttps\_\_www.google.com\_calendar\_w2Chttps\_\_www.google.com\_calendar\_ref