Microsoft Power Transition Report

The data presented in this report was gathered from 75, 331 customer machines as part of the Customer Experience Improvement Program. The data was collected in the time period from January 1, 2008 through March 1, 2008. The data is separated into laptops and desktops with filtering applied to remove outliers using standard statiscal methods. The breakdown of laptops and desktops is approximately equal with 37,388 desktops and 35,195 laptops. The metrics calculated to determine % of time spent in each ACPI power state was calculated by summing the durations across all the machines and dividing by time across all states.

The data in Table 1 shows the time spent in each of the power states categorized by the number of power transitions that occurred during the 3 month period for desktop machines. This details can be found in Appendix 1:Desktop

Power Transitions	S0	S3	S4	S5
1 - 38 (25%)	62.9%	1.6%	0.3%	35.3%
38-116 (25%-75%)	34.7%	4.6%	0.7%	60.0%
116-246 (75+%)	30.8%	9.4%	1.1%	58.7%
Aggregate	*40.8%*	*5.0%*	*0.7%*	*53.5%*

Table 1: Desktop Power Transition Data

The data shows that desktop machines with more power transitions spend less time in S0 and more time in S3 and S4 than machines with fewer power transitions. Also desktop machines in the top 75% tend to be in S3 and or S4 more than other desktop machines.

The data in Table 2 shows the time spent in each of the power states categorized by the number of power transitions that occurred during the 3 month period for laptop machines

Power Transitions	S0	S3	S4	S5
1-62 (25%)	24.7%	5.2%	5.1%	65.0%
62-147 (25%-75%)	26.5%	8.5%	5.5%	59.5%
147-282 (75+%)	28.9%	15.6%	6.6%	48.9%
Aggregate	*26.6%*	*9.4%*	*5.7%*	*58.3%*

Table 2: Laptop Power Transition Data

The data shows that laptops tend to have more power transitions relative to desktops. In addition the data suggests that there is a correlation between the number of transitions and the time spent in S0, S3, and S4 states. That is as the number of transitions increased so did the amount of time spent in those power states. Finally laptops spent much more time in S3 and S4 relative to desktop machines.

Distribution of Desktop Power Transitions with 25% and 75% Lines

Distribution of Laptop Power Transitions with 25% and 75% Lines