



Envision
Technology Advisors, LLC

Virtual Desktop Readiness Assessment

Prepared For: CUSTOMER



Agenda

- 1. Scope**
2. Findings
3. VDI FIT
4. Recommendations

Assessment Scope

Assessment Scope

Assessment Start Date: February 3, 2010

Assessment End Date: February 4, 2010

Assessment Duration: 1 day

Assessment Locations: 1 Sites

Desktops in Org: 10

Desktops Assessed: 11

Users in Org: 25 Users

Users Assessed: 11

Machine Groups in Org: 1 Machine Group

Machine Groups Assessed: 1

User Groups in Org: 1 User Group

User Groups Assessed: 0

VDI Fit Definition

CPU and Memory Fit	Good	Fair	Poor
Avg. System CPU % Used	< 10 %	10 - 40 %	> 40 %
Avg. User CPU % Used	< 10 %	10 - 40 %	> 40 %
Avg. Memory KB Used	< 350000 KB	350000 - 700000 KB	> 700000 KB
Avg. GDI Objects	< 150	150 - 300	> 300
I/O Fit	Good	Fair	Poor
Avg. Disk IOPS	< 10 IOPS	10 - 25 IOPS	> 25 IOPS
Avg. Network KB/s	< 5 KB/s	5 - 20 KB/s	> 20 KB/s
Avg. Network Roundtrip MS	< 40 ms	40 - 140 ms	> 140 ms

Assessment Machine Groups

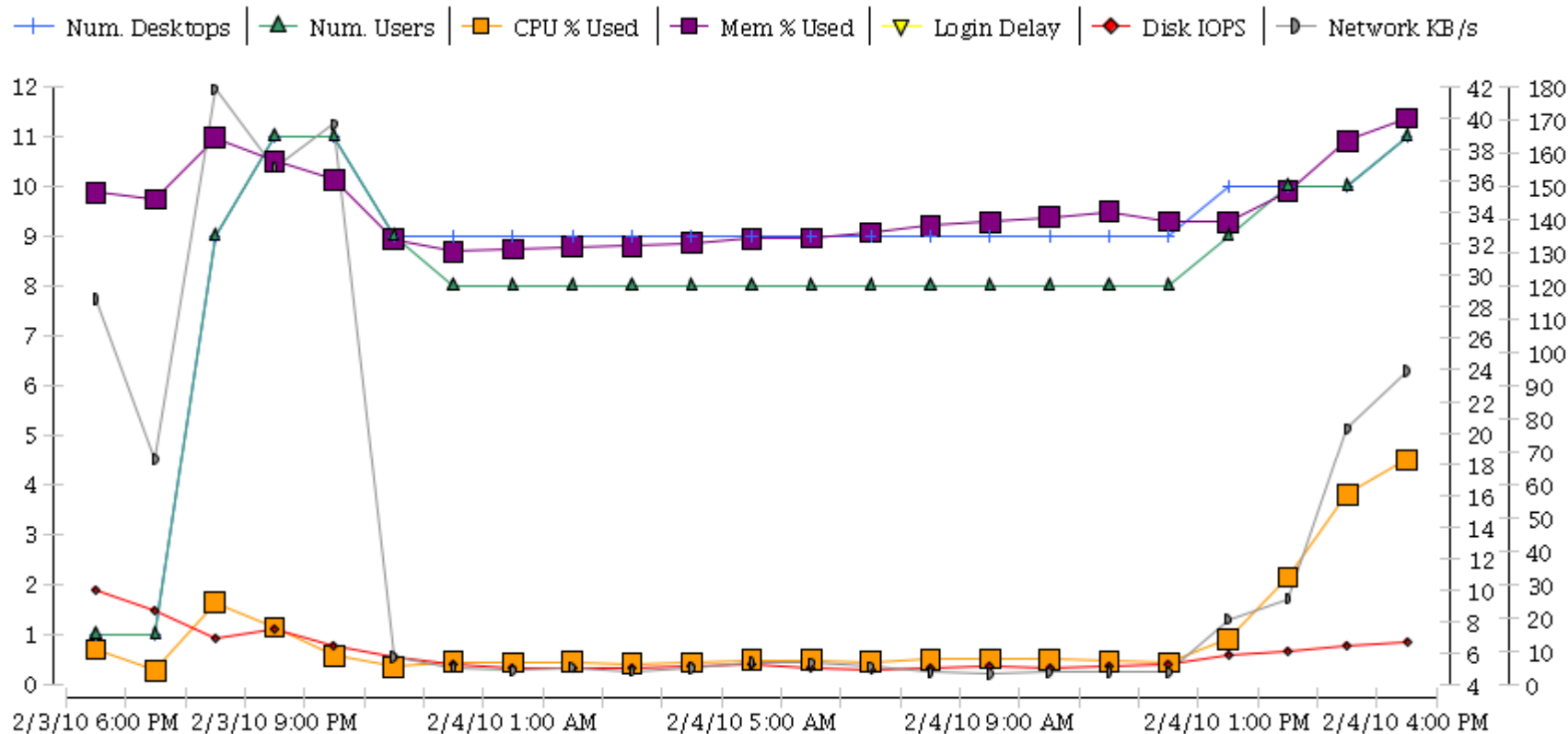
Machine Group	Number of Desktops
CUSTOMER PCs	10

Total : 1

Agenda

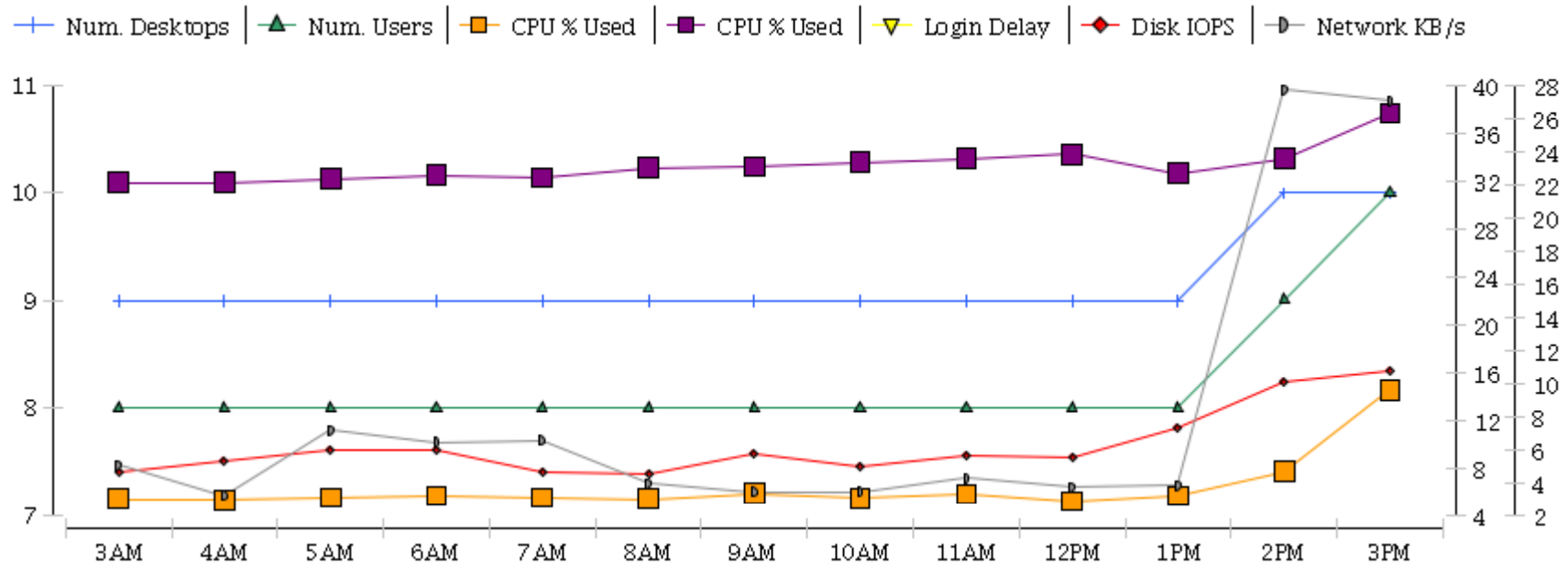
1. Scope
2. **Findings**
3. VDI FIT
4. Recommendations

Key Metrics Over Assessment Time Period



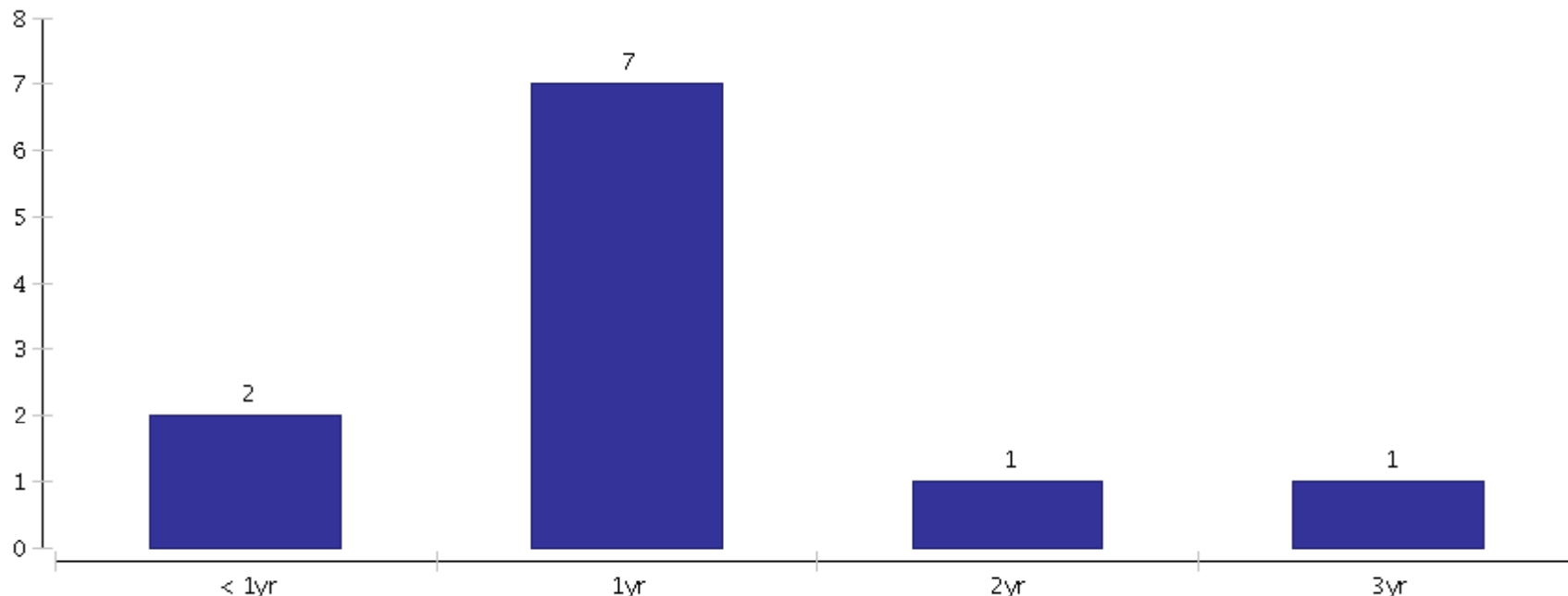
	Active Desktops	Active Users	Logon Duration (s)	App Load (ms)	System CPU (%)	User CPU (%)	CPU Mhz	Memory Usage (%)	Disk I/O (IOPS)	Disk I/O Rate	Disk R/W Ratio	Network I/O Rate	Network Latency (ms)	Graphics Intensity
Avg.	8.70	8.09	n/a	n/a	2.60%	4.47%	229.76	34.17%	9.38 IOPS	117.07 KB/s	1.25	42.37 KB/s	30.45ms	151.4
Peak Avg.	11.00	11.00	n/a	n/a	4.46%	13.81%	501.77	40.00%	28.60 IOPS	320.05 KB/s	10.30	179.23 KB/s	388.85ms	248.3

Key Metrics During Average Workday (M-F 8am-8pm)



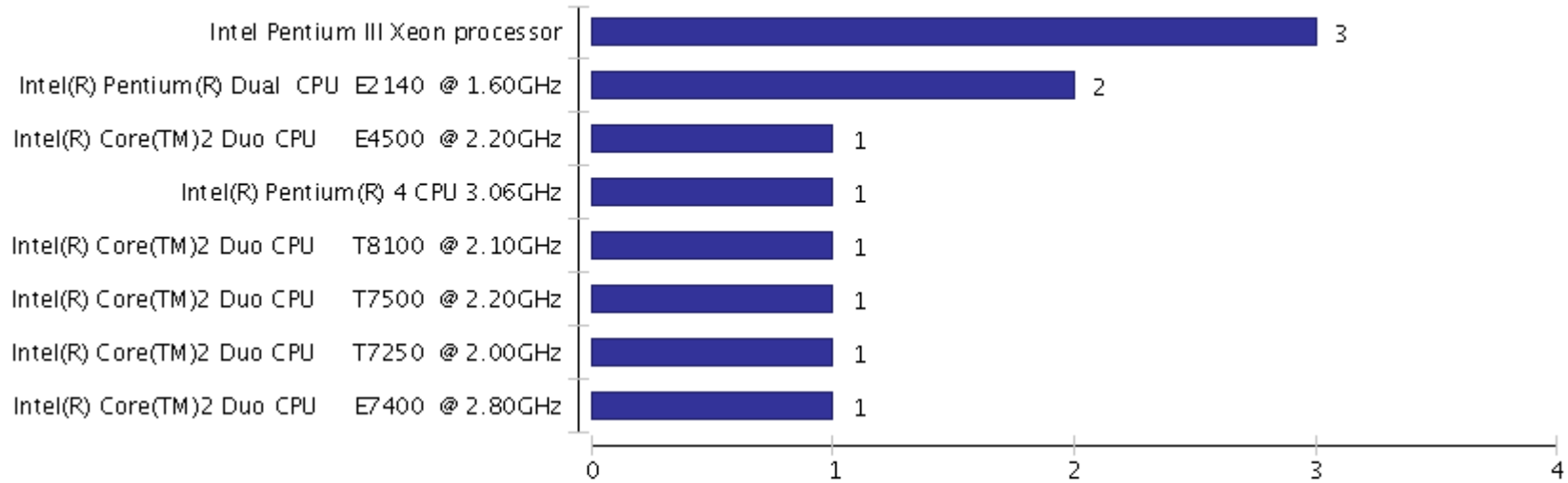
Hour Beginning	Active Desktops	Active Users	Average Logon Duration	Average App Load	Average System CPU	Average User CPU	Average CPU Mhz	Average Memory Usage	Average Disk I/O	Average Disk I/O Rate	Average Disk R/W Ratio	Average Network I/O Rate	Average Network Latency	Average Graphics Intensity
3AM	9	8	n/a	n/a	1.78%	3.63%	175.66	31.88%	4.65 IOPS	46.34 KB/s	0.12	5.06 KB/s	2.46ms	113.2
4AM	9	8	n/a	n/a	1.90%	3.39%	171.21	31.88%	5.26 IOPS	53.83 KB/s	0.13	3.25 KB/s	1.36ms	111.4
5AM	9	8	n/a	n/a	2.00%	3.53%	180.27	32.20%	6.00 IOPS	94.34 KB/s	0.32	7.16 KB/s	1.05ms	109.4
6AM	9	8	n/a	n/a	1.95%	3.71%	186.86	32.48%	5.97 IOPS	65.03 KB/s	0.26	6.47 KB/s	1.05ms	113.0
7AM	9	8	n/a	n/a	1.82%	3.69%	179.76	32.29%	4.62 IOPS	42.85 KB/s	0.08	6.57 KB/s	3.74ms	112.9
8AM	9	8	n/a	n/a	1.81%	3.62%	177.31	33.10%	4.55 IOPS	47.99 KB/s	0.12	3.95 KB/s	1.40ms	106.7
9AM	9	8	n/a	n/a	1.96%	3.89%	197.78	33.19%	5.79 IOPS	71.68 KB/s	0.28	3.48 KB/s	4.31ms	111.9
10AM	9	8	n/a	n/a	1.78%	3.68%	179.28	33.58%	4.98 IOPS	47.67 KB/s	0.12	3.46 KB/s	3.85ms	106.4
11AM	9	8	n/a	n/a	1.87%	3.94%	191.06	33.85%	5.67 IOPS	59.57 KB/s	0.22	4.28 KB/s	6.07ms	113.2
12PM	9	8	n/a	n/a	1.76%	3.45%	171.61	34.25%	5.50 IOPS	59.39 KB/s	0.17	3.72 KB/s	5.14ms	110.0
1PM	9	8	n/a	n/a	1.96%	3.70%	184.95	32.62%	7.30 IOPS	96.25 KB/s	0.27	3.82 KB/s	1.65ms	131.0
2PM	10	9	n/a	n/a	3.67%	4.06%	254.53	33.89%	10.10 IOPS	159.23 KB/s	0.49	27.72 KB/s	629.60ms	165.0
3PM	10	10	n/a	n/a	4.04%	10.50%	436.55	37.69%	10.76 IOPS	123.51 KB/s	5.73	27.04 KB/s	1.97ms	195.6

Desktop Age



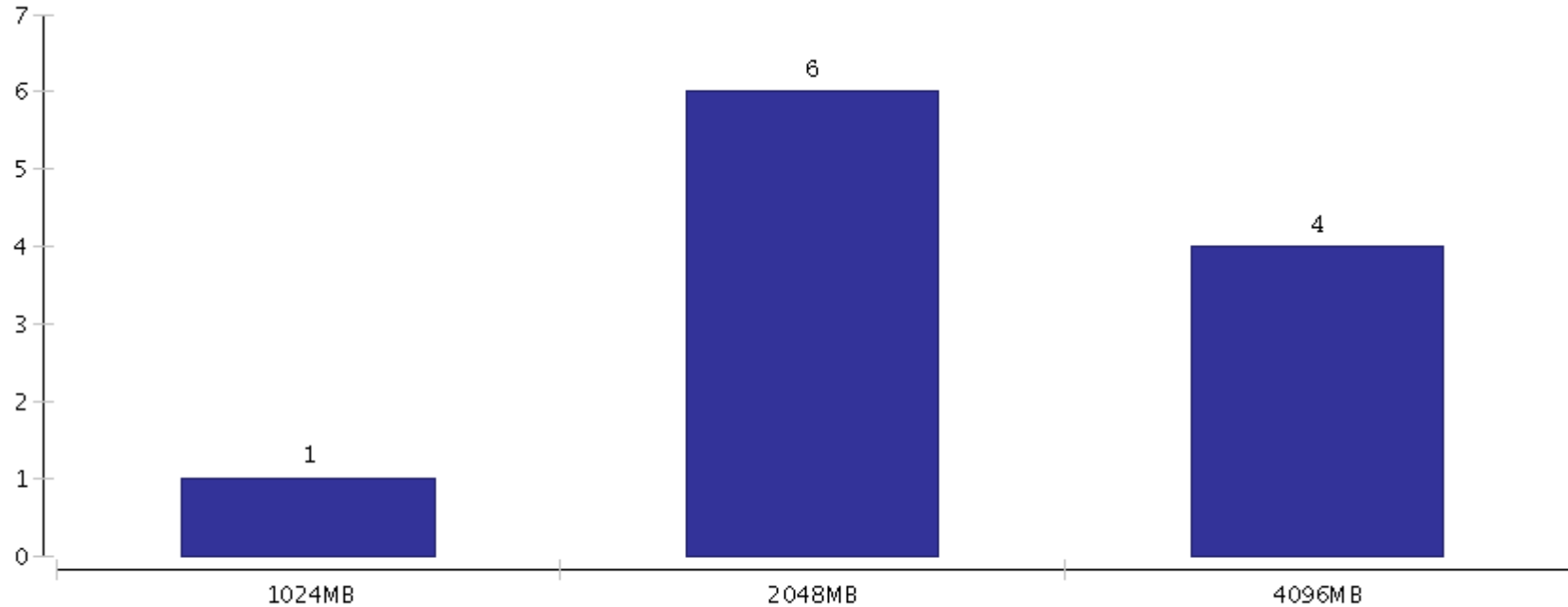
Years	Desktops	Avg. CPU %	Avg. CPU MHz	Total CPU MHz	Avg. Memory %	Avg. Memory Used	Avg. Disk Used %	Avg. Disk Used	VDI FIT Good	VDI FIT Fair	VDI FIT Poor
< 1yr	2	2%	133MHz	8GHz	44%	1GB	37.27%	37GB	0	2	0
1yr	7	11%	348MHz	59GHz	45%	1GB	33.00%	42GB	0	7	0
2yr	1	13%	200MHz	2GHz	67%	682MB	22.42%	16GB	0	1	0
3yr	1	10%	294MHz	7GHz	47%	961MB	47.28%	21GB	0	1	0
Totals	11								0	11	0

CPU Configuration



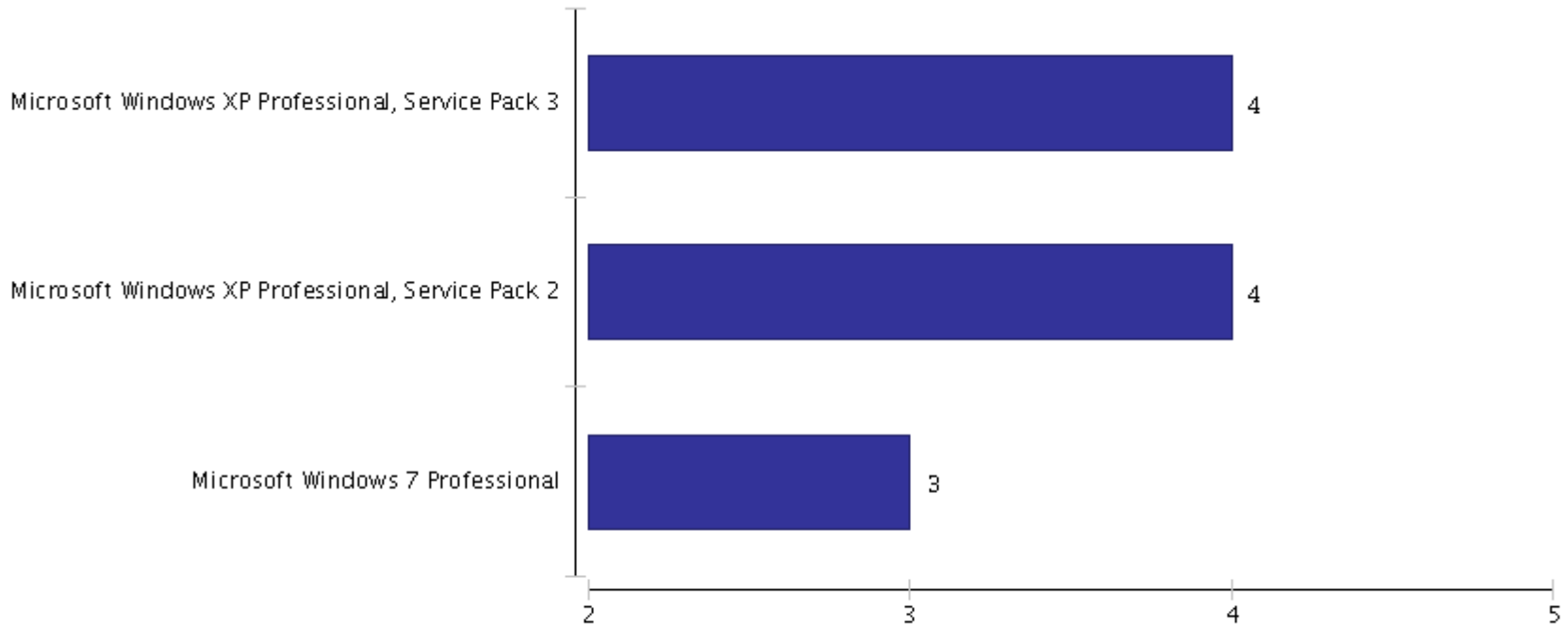
CPU Model	Desktops	Avg. CPU %	Avg. CPU MHz	Avg. CPU Peak %	VDI FIT Good	VDI FIT Fair	VDI FIT Poor
Intel Pentium III Xeon processor	3	4.55%	137.89MHz	7.11%	0	3	0
Intel(R) Pentium(R) Dual CPU E2140 @ 1.60GHz	2	29.72%	848.77MHz	37.43%	0	2	0
Intel(R) Core(TM)2 Duo CPU E7400 @ 2.80GHz	1	1.80%	100.72MHz	5.17%	0	1	0
Intel(R) Core(TM)2 Duo CPU T7250 @ 2.00GHz	1	2.32%	92.63MHz	6.11%	0	1	0
Intel(R) Core(TM)2 Duo CPU T7500 @ 2.20GHz	1	10.12%	445.38MHz	14.21%	0	1	0
Intel(R) Core(TM)2 Duo CPU T8100 @ 2.10GHz	1	1.50%	63.05MHz	3.03%	0	1	0
Intel(R) Pentium(R) 4 CPU 3.06GHz	1	9.61%	294.02MHz	24.73%	0	1	0
Intel(R) Core(TM)2 Duo CPU E4500 @ 2.20GHz	1	1.99%	87.11MHz	4.57%	0	1	0
Totals	11				0	11	0

Memory Configuration



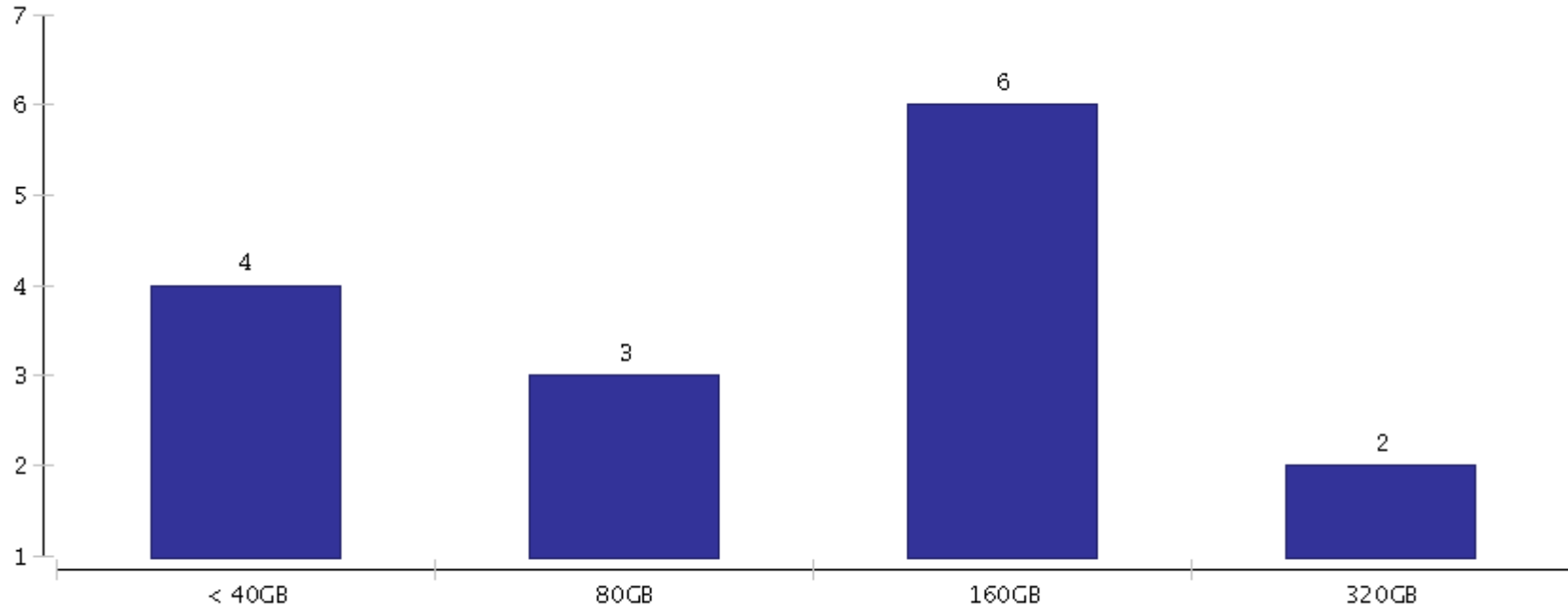
Memory Size	Count	Avg. Memory Used %	Avg. Memory Used	VDI FIT Good	VDI FIT Fair	VDI FIT Poor
1024MB	1	67.24%	681.80MB	0	1	0
2048MB	6	49.38%	994.91MB	0	6	0
4096MB	4	38.49%	1242.60MB	0	4	0
Totals	11			0	11	0

Operating System



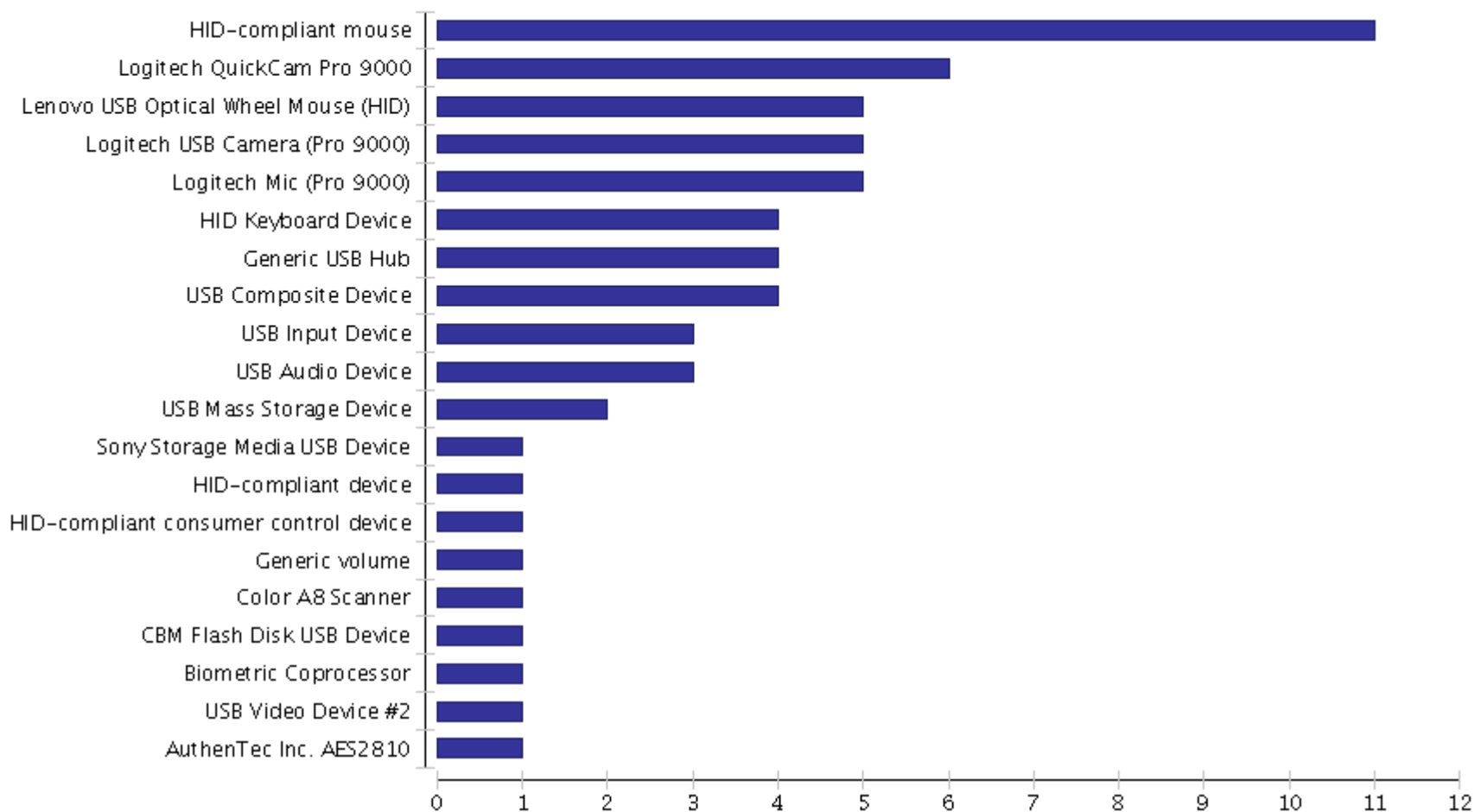
Operating Systems	Count	VDI FIT Good	VDI FIT Fair	VDI FIT Poor
Microsoft Windows XP Professional, Service Pack 2	4	0	4	0
Microsoft Windows XP Professional, Service Pack 3	4	0	4	0
Microsoft Windows 7 Professional	3	0	3	0
Totals	11	0	11	0

Storage



Disk Size	Count	Avg. Disk Used %	Avg. Disk Used	VDI FIT Good	VDI FIT Fair	VDI FIT Poor
< 40GB	4	43.62%	7GB	0	4	0
80GB	3	33.42%	24GB	0	3	0
160GB	6	29.76%	43GB	0	6	0
320GB	2	19.21%	57GB	0	2	0
Totals	15			0	15	0

External Devices - Most Used



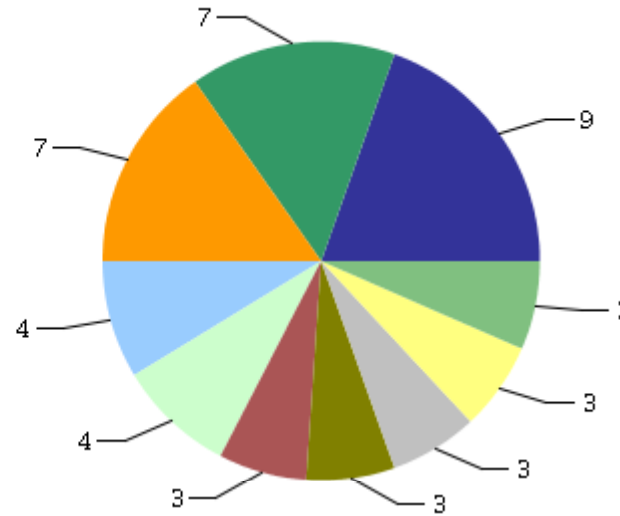
Monitors and Printers

Monitor Configurations	Number of Desktops
1 Monitor	4
2 Monitors	7
More than 2 Monitors	0

Printer Configurations	Number of Desktops
1 Local Printer	6
More Than 1 Local Printer	0
1 Network Printer	0
More Than 1 Network Printer	0

Applications - Most Used by Number of Users

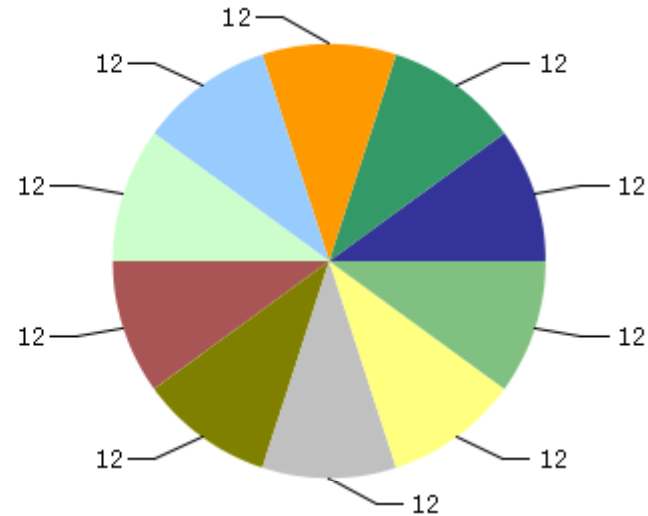
- Internet Explorer
- Microsoft Office Outlook
- QuickBooks
- Firefox
- Microsoft Office Word
- AIM Pro
- Generic Host Process for Win32 Servic...
- Google Chrome
- SEE Client Application
- VpxClient



Application Name	Version	Number of Users	Number of Machines	Number of Executions	Total Usage Time
Internet Explorer	7.00.6000.16915	9	10	30	12h 00m 25s
Microsoft Office Outlook	11.0.8312	7	11	20	05h 00m 30s
QuickBooks	17.0D R13	7	7	14	12h 00m 59s
Firefox	3.5.7	4	5	9	12h 00m 17s
Microsoft Office Word	11.0.8313	4	7	11	08h 00m 39s
Google Chrome	0.0.0.0	3	3	31	03h 00m 38s
SEE Client Application	7, 0, 4, 0	3	7	7	n/a
AIM Pro	929 2006 01 16	3	7	10	12h 00m 06s
VpxClient	4.0.0.7797	3	3	5	09h 00m 35s
Generic Host Process for Win32 Services	5.1.2600.5512	3	8	49	n/a

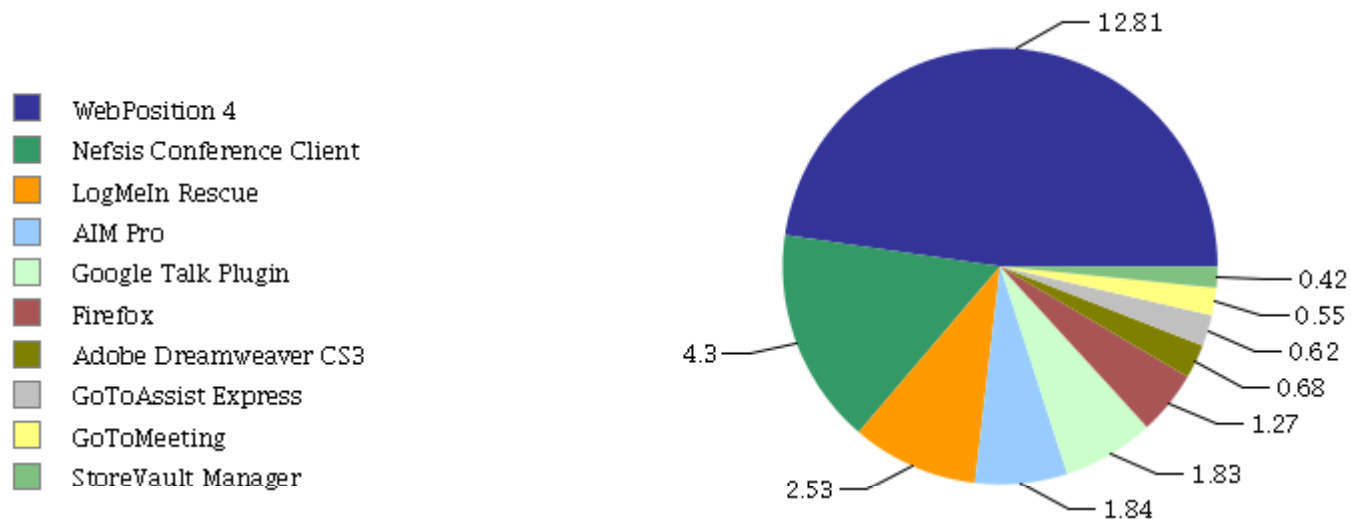
Applications - Most Used by Time

- Internet Explorer
- QuickBooks
- Firefox
- AIM Pro
- GoToAssist Express
- Active@ ISO Image File Burning Softw...
- Adobe Reader 8.1
- Adobe Reader 9.3
- LogMeIn Rescue
- WMI



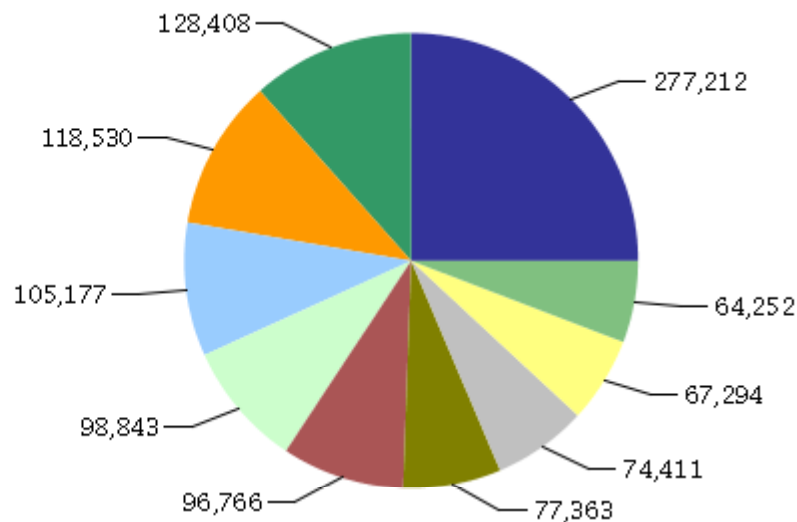
Application Name	Version	Number of Users	Number of Machines	Number of Executions	Total Usage Time
QuickBooks	17.0D R13	7	7	14	12h 00m 59s
LogMeIn Rescue	6.1.364	1	1	2	12h 00m 57s
Adobe Reader 8.1	8.1.0.2007051100	1	2	2	12h 00m 55s
Active@ ISO Image File Burning Software	2.0.0.5	1	1	2	12h 00m 46s
Adobe Reader 9.3	9.3.0.148	1	1	1	12h 00m 43s
Internet Explorer	7.00.6000.16915	9	10	30	12h 00m 25s
Firefox	3.5.7	4	5	9	12h 00m 17s
WMI	5.1.2600.5755	1	1	1	12h 00m 11s
AIM Pro	929 2006 01 16	3	7	10	12h 00m 06s
GoToAssist Express	1.3 Build 209	2	2	2	12h 00m 04s

Applications - Top Avg. CPU Consumers (%)



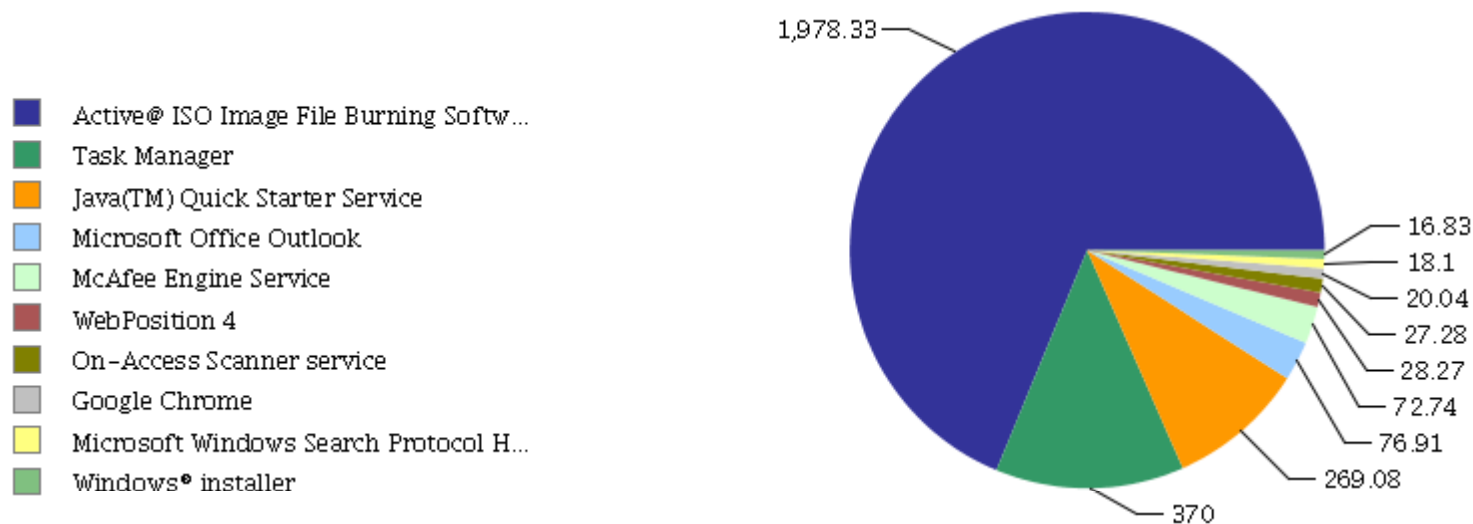
Application	Users	Average CPU Time	Average CPU %	Average Memory	Average I/O	Average Graphics Intensity
WebPosition 4	1	1.79s	12.81%	72.67MB	28.27KB/s	352.9
Nefsis Conference Client	1	425.50ms	4.30%	53.38MB	0.00KB/s	1247.3
LogMeIn Rescue	1	79.67ms	2.53%	18.44MB	1.75KB/s	58.5
AIM Pro	3	270.69ms	1.84%	25.35MB	0.69KB/s	2298.7
Google Talk Plugin	0	108.90ms	1.83%	14.29MB	0.00KB/s	n/a
Firefox	4	195.39ms	1.27%	270.72MB	8.59KB/s	352.3
Adobe Dreamweaver CS3	1	53.55ms	0.68%	75.55MB	15.75KB/s	455.0
GoToAssist Express	3	57.10ms	0.62%	16.85MB	0.00KB/s	104.0
GoToMeeting	0	89.35ms	0.55%	7.31MB	0.00KB/s	29.6
StoreVault Manager	1	31.12ms	0.42%	8.99MB	0.00KB/s	n/a

Applications - Top Avg. Memory Consumers (KB/MB)



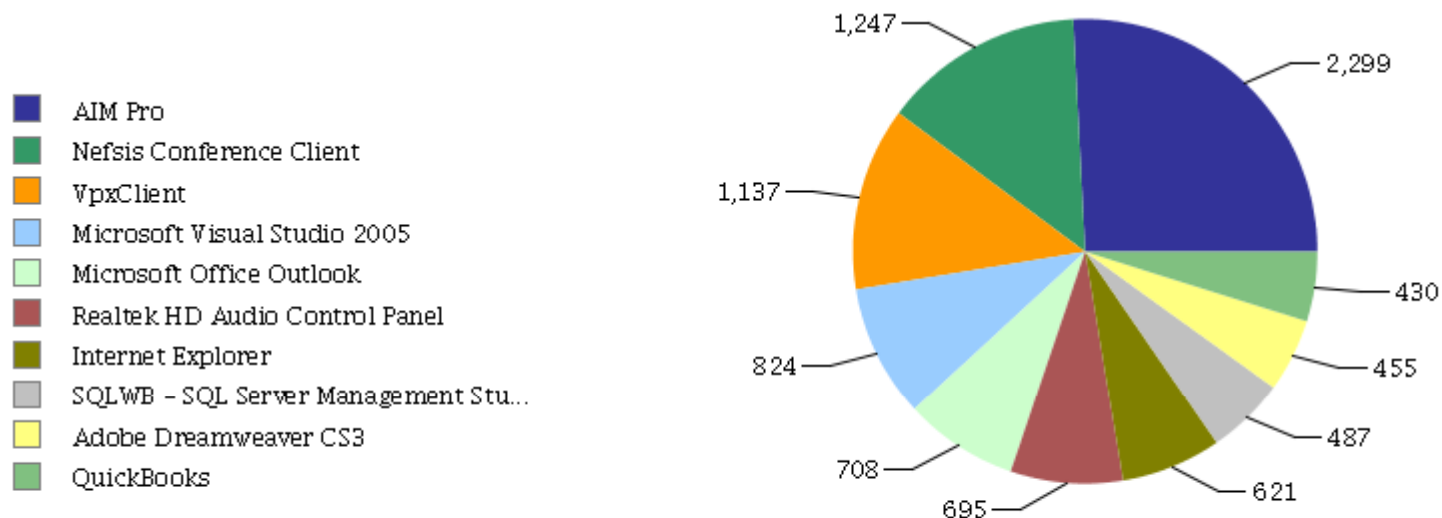
Application	Users	Average CPU Time	Average CPU %	Average Memory	Average I/O	Average Graphics Intensity
Firefox	4	195.39ms	1.27%	270.72MB	8.59KB/s	352.3
Microsoft Visual Studio 2005	1	19.84ms	0.18%	125.40MB	2.92KB/s	824.1
Microsoft Office Outlook	7	34.26ms	0.23%	115.75MB	76.91KB/s	707.6
Active@ ISO Image File Burning Software	1	4.30ms	0.13%	102.71MB	1.93MB/s	n/a
SQLWB - SQL Server Management Studio	1	25.92ms	0.26%	96.53MB	16.50KB/s	486.7
McAfee Engine Service	1	8.00ms	0.08%	94.50MB	72.74KB/s	4.0
Adobe Dreamweaver CS3	1	53.55ms	0.68%	75.55MB	15.75KB/s	455.0
WebPosition 4	1	1.79s	12.81%	72.67MB	28.27KB/s	352.9
QuickBooks	7	16.77ms	0.26%	65.72MB	8.48KB/s	429.6
Windows NT Logon Application	1	0.90ms	0.02%	62.75MB	0.59KB/s	44.6

Applications - Top Avg. IO Consumers (KB/s)



Application	Users	Average CPU Time	Average CPU %	Average Memory	Average I/O	Average Graphics Intensity
Active@ ISO Image File Burning Software	1	4.30ms	0.13%	102.71MB	1.93MB/s	n/a
Task Manager	1	7.60ms	0.32%	4.38MB	370.00KB/s	4.0
Java(TM) Quick Starter Service	1	11.16ms	0.07%	1.38MB	269.08KB/s	4.0
Microsoft Office Outlook	7	34.26ms	0.23%	115.75MB	76.91KB/s	707.6
McAfee Engine Service	1	8.00ms	0.08%	94.50MB	72.74KB/s	4.0
WebPosition 4	1	1.79s	12.81%	72.67MB	28.27KB/s	352.9
On-Access Scanner service	1	22.92ms	0.16%	35.77MB	27.28KB/s	4.3
Google Chrome	3	18.04ms	0.19%	46.34MB	20.04KB/s	50.2
Microsoft Windows Search Protocol Host	1	23.30ms	0.30%	1.86MB	18.10KB/s	n/a
Windows® installer	0	47.08ms	0.28%	10.56MB	16.83KB/s	5.0

Applications - Top Avg. Graphics Consumers (GDI Objects)



Application	Users	Average CPU Time	Average CPU %	Average Memory	Average I/O	Average Graphics Intensity
AIM Pro	3	270.69ms	1.84%	25.35MB	0.69KB/s	2298.7
Nefsis Conference Client	1	425.50ms	4.30%	53.38MB	0.00KB/s	1247.3
VpxClient	3	10.02ms	0.10%	52.02MB	0.29KB/s	1136.8
Microsoft Visual Studio 2005	1	19.84ms	0.18%	125.40MB	2.92KB/s	824.1
Microsoft Office Outlook	7	34.26ms	0.23%	115.75MB	76.91KB/s	707.6
Realtek HD Audio Control Panel	0	0.00ms	0.00%	22.39MB	0.00KB/s	695.0
Internet Explorer	9	39.60ms	0.41%	58.25MB	2.99KB/s	620.8
SQLWB - SQL Server Management Studio	1	25.92ms	0.26%	96.53MB	16.50KB/s	486.7

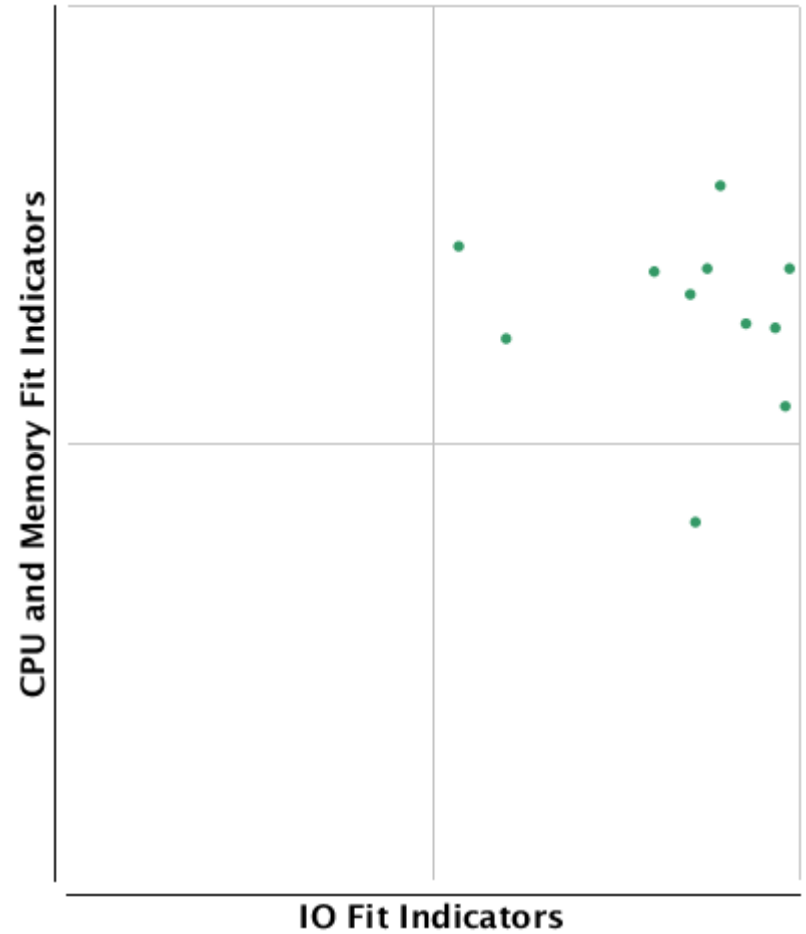
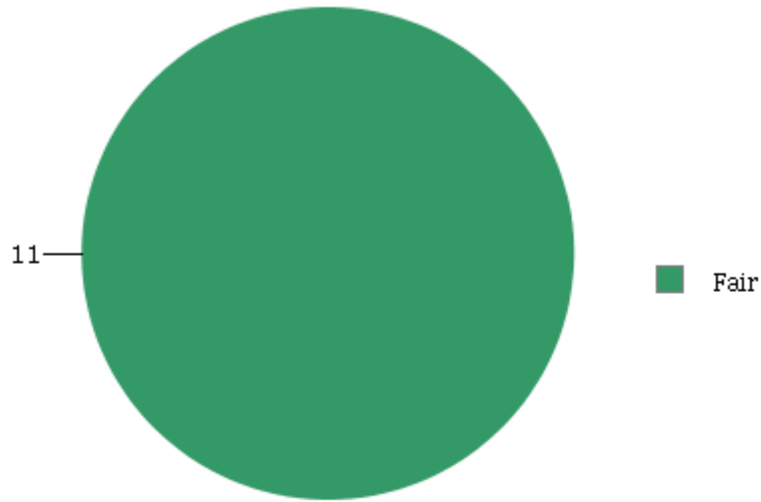
Application	Users	Average CPU Time	Average CPU %	Average Memory	Average I/O	Average Graphics Intensity
Adobe Dreamweaver CS3	1	53.55ms	0.68%	75.55MB	15.75KB/s	455.0
QuickBooks	7	16.77ms	0.26%	65.72MB	8.48KB/s	429.6

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3. **VDI FIT**
4. Recommendations

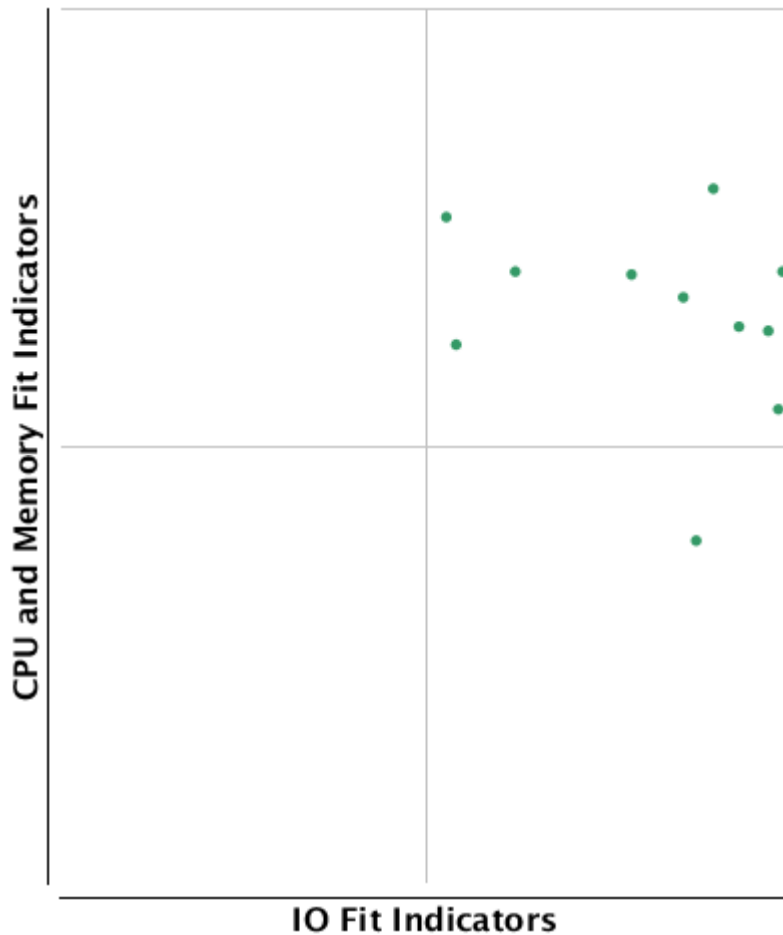
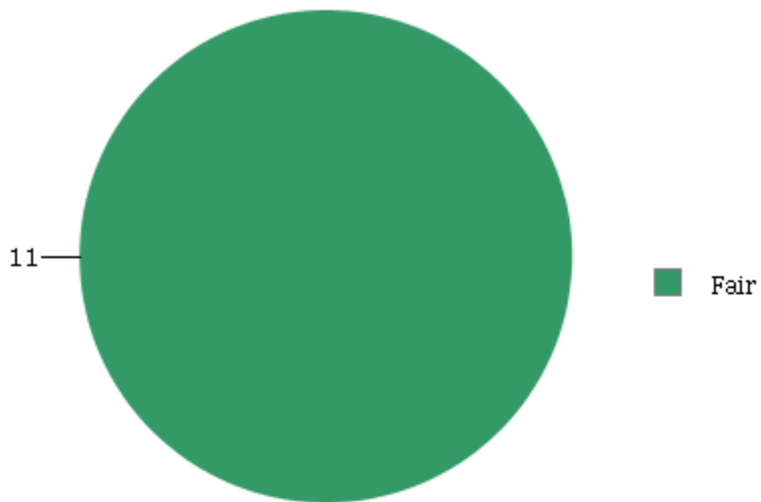
VDI Fit - Machines

VDI Fit, All Machines	Count
Good	0
Fair	11
Poor	0

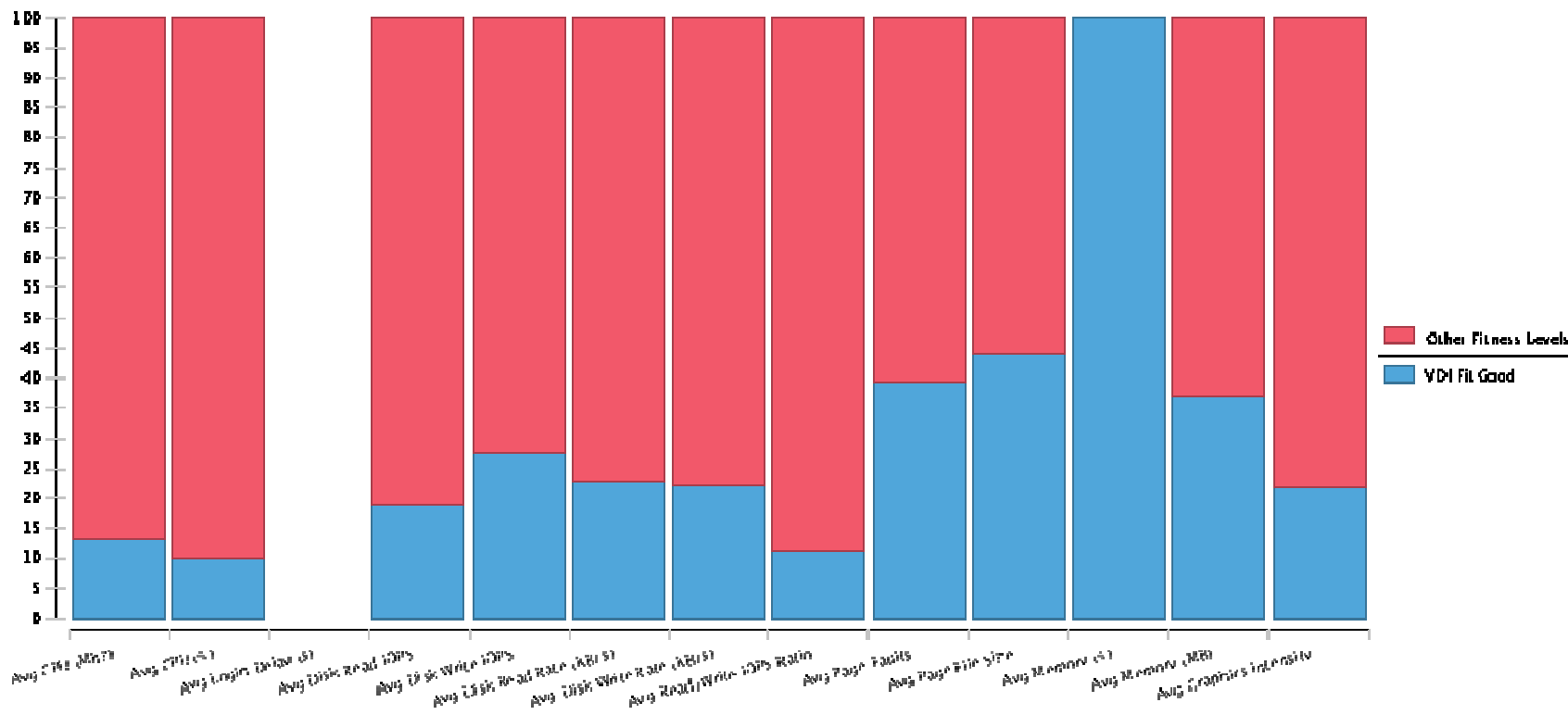


VDI Fit - Users

VDI Fit, All Users	Count
Good	0
Fair	11
Poor	0



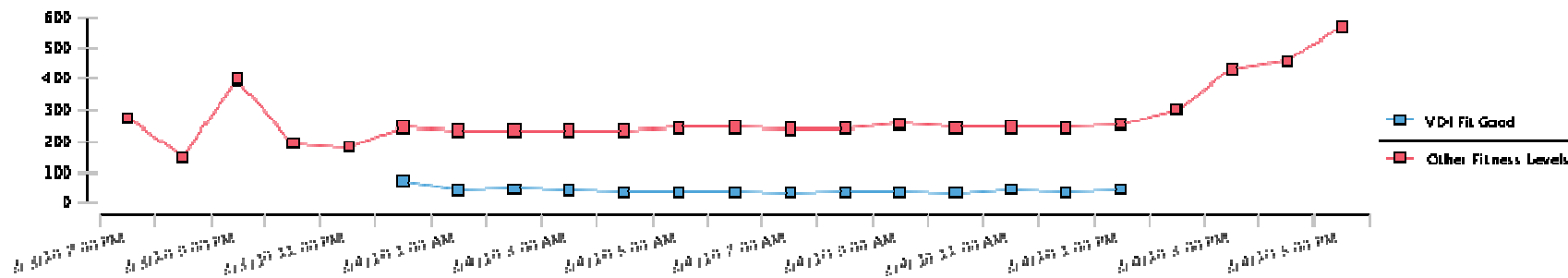
VDI Fit Comparison - Good Vs. Others



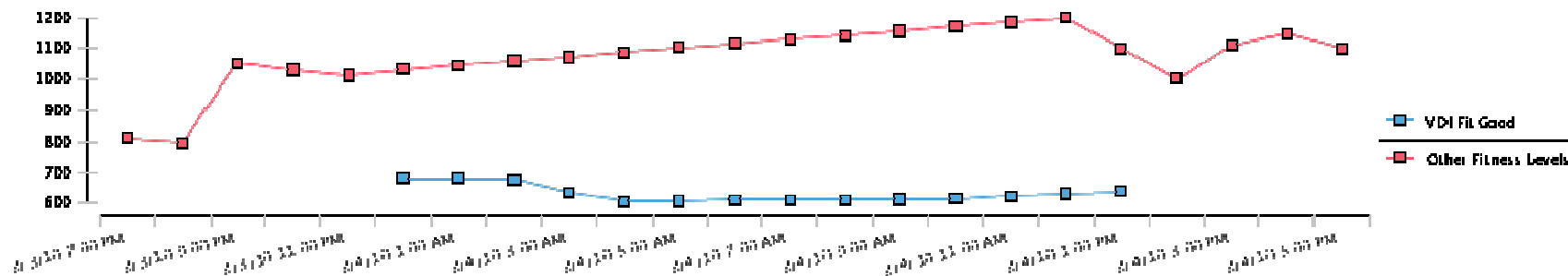
Group	Avg. CPU Mhz	Avg. CPU %	Avg. Login Delay (s)	Avg. Disk Read IOPS	Avg. Disk Write IOPS	Avg. Disk Read KB/s	Avg. Disk Write KB /s	Avg. Disk R/W IOPS Ratio	Avg. Page Faults	Avg. Page File Size MB	Avg. Memory %	Avg. Memory MB	Avg. Graphics Intensity
Other Fitness Levels	273.47	8.52		2.37	6.66	49.50	79.14	1.51	205,547.87	4,368.15		1,078.83	138.30
VDI Fit Good	41.34	0.94		0.54	2.51	14.56	22.58	0.18	133,519.62	3,408.69	25.37	630.92	38.25

VDI Fit Comparison - Good Vs. Others

CPU Utilization Trend

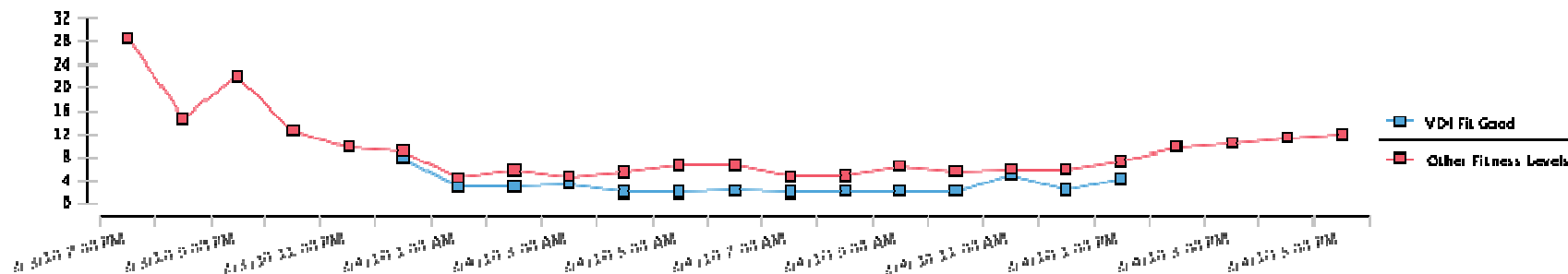


Memory Utilization Trend

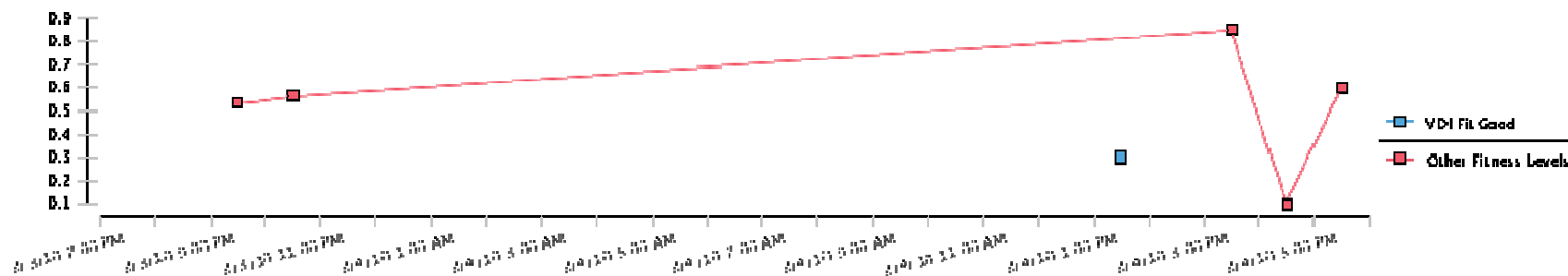


VDI Fit Comparison - Good Vs. Others

Disk Utilization Trend



Network Utilization Trend



Worst VDI Fit - Machines

Name	Avg. Sys CPU (%)	Avg. User CPU (%)	Avg. Memory Used	Avg. Mem Used (%)	Avg. Graphics	Avg. Disk IOPS	Avg. Network I/O	Avg. Network Latency	Avg. VDI Fit
Britte's PC	4.81%	4.78%	1.01GB	44.13%	217.90	6.45	61.74KB/s	308.83ms	2.22
reception	9.06%	3.45%	721.29MB	42.84%	116.39	13.44	873.65KB/s	1.36ms	2.26
Jeremy Spurr	11.03%	36.47%	946.67MB	24.66%	96.07	11.83	9.03KB/s	3.56ms	2.27
mando-pc	2.23%	7.85%	1.32GB	52.44%	4.15	9.87	20.53KB/s	2.77ms	2.50
desktop-brent	0.92%	0.70%	869.18MB	31.53%	150.91	16.15	1.84KB/s	n/a	2.52
laptop-ross	1.30%	1.01%	1.11GB	35.83%	292.23	5.27	0.65KB/s	1.91ms	2.52
env-ezra	1.46%	1.36%	1.60GB	40.07%	186.20	5.11	5.01KB/s	2.15ms	2.56
Sean's PC	0.76%	1.00%	1.18GB	25.63%	6.09	4.71	51.17KB/s	2.62ms	2.57
joe	2.56%	5.69%	1.15GB	37.36%	159.64	7.83	0.45KB/s	2.79ms	2.60
Todds PC	1.33%	0.63%	690.15MB	27.73%	110.05	7.47	6.30KB/s	n/a	2.69
laptop-jasonm	0.81%	0.69%	1.36GB	23.84%	6.06	3.54	0.15KB/s	1.27ms	2.69

Worst VDI Fit - Users

Name	Avg. Sys CPU (%)	Avg. User CPU (%)	Avg. Memory Used	Avg. Mem Used (%)	Avg. Graphics	Avg. Disk IOPS	Avg. Network I/O	Avg. Network Latency	Avg. VDI Fit
Britte	5.02%	4.61%	982.65MB	43.03%	212.20	7.56	55.56KB/s	513.24ms	2.16
jeremys	11.02%	37.77%	964.08MB	25.18%	99.96	7.12	9.44KB/s	3.70ms	2.26
michelem	9.24%	3.53%	693.38MB	41.29%	104.56	14.83	840.96KB/s	1.80ms	2.29
josh	1.70%	2.46%	1.63GB	36.11%	4.06	10.49	161.32KB/s	1.66ms	2.32
MikeA	2.30%	7.81%	1.32GB	52.23%	4.15	10.80	21.47KB/s	2.70ms	2.48
brent	0.92%	0.70%	869.18MB	31.53%	150.91	16.15	1.84KB/s	n/a	2.52
ross	1.30%	1.01%	1.11GB	35.83%	292.23	5.27	0.65KB/s	1.91ms	2.52
ezra	1.46%	1.36%	1.60GB	40.07%	186.20	5.11	5.01KB/s	2.15ms	2.56
gleason	2.56%	5.69%	1.15GB	37.36%	159.64	7.83	0.45KB/s	2.79ms	2.60
todd	1.33%	0.63%	690.15MB	27.73%	110.05	7.47	6.30KB/s	n/a	2.69
jasonm	0.81%	0.69%	1.36GB	23.84%	6.06	3.54	0.15KB/s	1.27ms	2.69

Agenda

1. Scope
2. Findings
3. VDI FIT
4. **Recommendations**

Design Baseline

Aggregate Data

System Element	Observed - High	Observed - Average	Observed - Low
CPU Speed	3059.00	2344.03	1596.00
CPU Used (%)	58.14	7.82	0.35
Memory Used (MB)	2364.89	1078.10	549.49
Page File Size (MB)	2467.12	1137.51	365.25
Disk Used (GB)	81.00	36.06	0.02
Disk IOPS	115.63	8.27	0.00
Network I/O (KB/s)	960.00	129.34	2.00
Network Latency (ms)	1523.94	24.05	0.22

VDI Configuration Baseline

	Minimum Configuration	Recommended Configuration	Conservative Configuration
Number of Cores	1	2	3
Memory Needed	7 GB	9 GB	10 GB
Storage Needed	302 GB	385 GB	426 GB

** Design assumes master image, de-duplication

Recommendations

Proposed Solution

This is where the design for your View Deployment would be.

VDI

Thank You for your time!

Questions can be directed to:

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