



MS RAMAIAH INSTITUTE OF TECHNOLOGY

(An Autonomous Institute Affiliated to VTU)
Accredited by National Board of Accreditation

IPMPlus delivers 50% energy savings for M.S. Ramiah Institute of Technology

Case Study | August 2013

*Vigyanlabs*TM



NASSCOM[®]

Technology
Innovation of the
Year, 2013



Established in 1962, MSRIT is one of India's finest engineering colleges with NBA Level A accreditation



MS RAMAIAH INSTITUTE OF TECHNOLOGY

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- Founded in 1962
- One of India's finest engineering colleges
- 35,000+ engineering professionals since inception
- One of the largest educational campuses located in Bangalore, India's IT capital
- Accredited at the highest level, Level A, by National Board of Accreditation of India

IPMPlus Deployment

- 1,000+ PCs and Laptops covered in Phase – 1
- 50+ lab facilities and college administration covered in Phase – 1
- Implemented on Windows and Linux operating systems
- Go live in 15 days end-to-end
- Phase – 2 deployment plans to cover nearly 3,000 systems

IPMPlus power savings policies helped the institute cut energy consumption by 50% in 6 months



▲ 14.79 MWh
of electricity saved

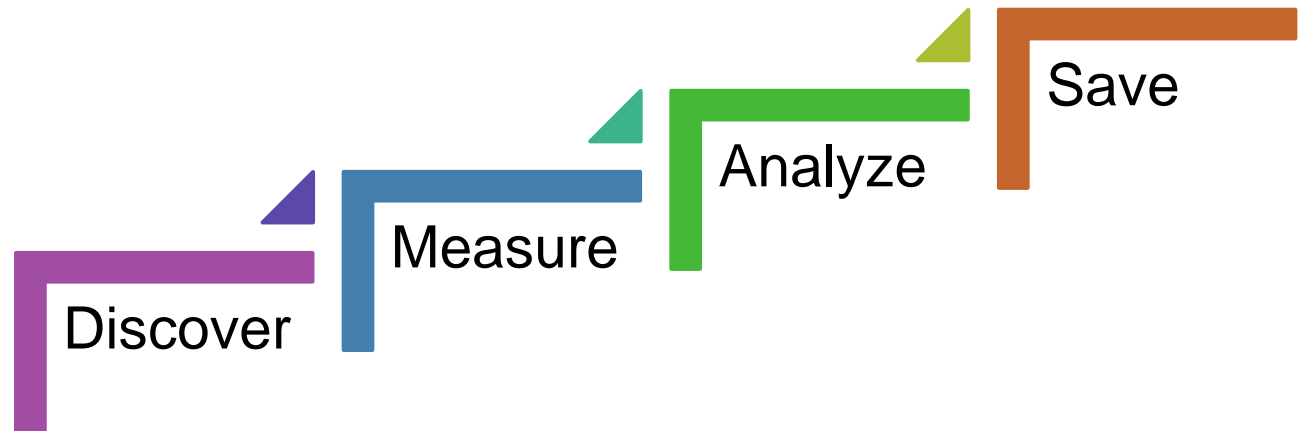
▼ 50%
Reduction in energy
consumed

▼ 6.72 Tonnes
of CO2 emissions
reduced

▲ 172 Trees
Environmental impact
equal to planting these
many trees

The energy savings journey

How IPMPlus helped MSRIT achieve these results



Within minutes of installation, IPMPlus helped create a comprehensive asset inventory of the institute

- ▶ Automatic, real-time discovery of Hardware and Software assets helped the institute rapidly assimilate and analyze its IT inventory
- ▶ Non-standard hardware configurations and software installations were identified for streamlining within an hour.

Reports > Asset Report

Show 25 entries

Search all columns:

Group	Hostname	OS	Processor	IP Address	System Manufacturer	System Serial No.	System Model	Disk Model	Disk Serial No.	Disk Capacity
Admission Scholarship		Microsoft Windows XP Professional	Intel(R) Core(TM)2 Duo CPU E6600 @ 2.40GHz	1	LENOVO	L901385	9357A12	Hitachi HDP725016GL	GEX860R82...	149.05 GB
Admission Scholarship		Microsoft Windows XP Professional	Intel(R) Core(TM) i3 CPU 550 @ 3.20GHz	1	LENOVO	L904115	7493RUS	Hitachi HD5721050CL	JPB570HC0...	465.76 GB
Admission Scholarship		Microsoft Windows XP Professional	Intel(R) Core(TM) i3 CPU 550 @ 3.20GHz	1	LENOVO	L909233	7493RR3	ST500DM00...18D142	Z2A9J6VV	465.76 GB
Admission Scholarship		Microsoft Windows XP Professional	Intel(R) Pentium(R) D CPU 2.40GHz	4	9 GBT_	NA	AWRDACPI	CLOVER CP1604N	0773P8016...	149.05 GB
Admission Scholarship		Microsoft Windows XP Professional	Intel(R) Core(TM)2 Duo CPU E7300 @ 2.66GHz	1	LENOVO	L988393	94390Q5	ST3250318AS	SVY0ZR3J	232.88 GB
Analog and Digital Lab		Microsoft Windows XP Professional	Intel(R) Pentium(R) D CPU 3.40GHz	1	5 Acer	AWP09GT3...	AcerPower Series	Hitachi HD5721616PL	PVB30022T...	153.38 GB
Analog and Digital Lab		Microsoft Windows XP Professional	Intel(R) Pentium(R) D CPU 3.40GHz	1	2 Acer	AWP09GT3...	AcerPower Series	Hitachi HD5721616PL	PVB30022T...	153.38 GB
Analog and Digital Lab		Microsoft Windows XP Professional	Intel(R) Pentium(R) D CPU 3.40GHz	1	3 Acer	AWP09GT3...	AcerPower Series	Hitachi HD5721616PL	PVB30022T...	153.38 GB
Analog and Digital Lab		Microsoft Windows XP Professional	Intel(R) Pentium(R) D CPU 3.40GHz	1	Acer	AWP09GT3...	AcerPower Series	ST3160812AS	SLSB2LWE	149.05 GB
Analog and Digital Lab		Microsoft Windows XP Professional	Intel(R) Pentium(R) D CPU 3.40GHz	1	Acer	AWP09GT3...	AcerPower Series	ST3160812AS	SLSB2LWE	149.05 GB

Real-time Hardware asset inventory

Home Group Management User Management Power Scheme Management Tools Reports Help

Reports > Software Information

Fetch Software Asset Details

List of Software Applications installed across the Network

Show 25 entries

Search all columns:

Application	Publisher	Quantity
SUNINSTALL_NAME	Wise Coders Solutions	1
1Click Clocksync 2.0	Express Computing	1
1ClickDownloader	1ClickDownload	8
2.2 API Documentation	UNKNOWN	1
2007 Microsoft Office Suite Service Pack 3 (SP3)	Microsoft	60
30EDB926D5E12A2238882DD4A54E2A641014C3BE	Sunix Co., Ltd.	1
32 Bit HP BiDi Channel Components Installer	Hewlett-Packard	3
32 Bit HP CIO Components Installer	Hewlett-Packard	2
3D Sniper	My Real Games Ltd	1
3DS Import for Solid Edge	SYCODE	1
3dsmax ancillary install	Autodesk	6
3G HSDPA Modem	3G HSDPA Modem	13
3G USB Modem		1
3GP Player 1.1.7	Bobabo	1
4Media DAT Converter 6	4Media	1
4shared Desktop		2
519883 (Shared Components)	element5	1
5star BeeLines		1
7 Sticky Notes	Fabio Martin	1
7 Wonders II		2
7-Zip 9.13 beta		1
7-Zip 9.20	Igor Pavlov	64
8085 Simulator		1
A		3
A-FF Repair Station v4.4	A-FF Data Recovery	1

Real-time Software asset inventory

Grouping feature of IPMPlus helped discover utilization and energy consumption patterns for IT optimization

- ▶ IPMPlus allows creation of groups of PCs as per business requirements. This helps in rapid diagnosis of energy consumption by function, location and various other attributes
- ▶ IPMPlus utilization reports provide powerful data for taking IT optimization decisions including Asset Upgrades and Asset Reuse

Home | Group Management | User Management | Power Scheme Management | Tools

Group Management > Manage Groups and Nodes

Group Name	Category
Admission Scholarship	Default
Analog and Digital Lab	Default
Analog and Power Electronic Lab	Default
Architecture LAB	Default
Bio Technology Lab and Faculty	Default
C Sc Faculty Room	Default
C Sc Faculty Room 1	Default
C Sc Faculty Room 2	Default
chemical lab and faculty	Default
chemistry Lab and faculty	Default
Civil Lab	Default
Communication Lab	Default
Computer Lab 3	Default
Computer Lab 4	Default
Computer Science Lab Level 1	Default
CSE Faculty Room 2	Default
Default	Default
Department of E and E Office	Default
digital library unit 1 main lab	Default
Digital Library unit 2	Default
digital microcontroller lab	Default
E and C Rnd Lab	Default

Systems grouped as per business needs of the institute

From: 2013-02-01 To: 2013-08-13 View: Group wise Group: All Go

Group Name	Total Usage Duration (hh:mm:ss)	Total Idle Duration (hh:mm:ss)	Total Savings done Duration (hh:mm:ss)	Power Consumed (kWh)	Power Saved (kWh)	CO2 Emissions (kg)	Total Nodes	Power Savings (%)	Group Summary Details
Default	3405:58:55	2097:52:44	476:41:11	166.14	21.93	9.954	22	11.661	
Monitoring Nodes	18:36:16	13:21:48	0:0:0	1.41	0	0	1	0	
simulation lab	5031:27:58	3723:18:29	2628:37:35	254.09	231.29	105.006	31	47.651	
simulation E and C lab	14190:51:35	10266:59:25	6640:50:36	641.26	395.83	179.707	20	38.168	
Embedded center Computer science	627:4:42	492:9:25	5:36:58	46.94	0.33	0.148	21	0.698	
Mtech class lab	417:9:50	202:0:43	92:9:57	25.95	5.64	2.558	8	17.854	
ISE Faculty room 3	6043:22:37	4761:1:28	3047:22:37	283.54	101.37	46.022	6	26.336	
ISE Department office	1263:22:0	736:41:54	285:18:9	77.79	13.68	6.212	2	14.954	
TC faculty room 1	7978:3:57	6405:59:56	5066:48:58	238.86	310.76	141.086	5	56.541	
Inst Tech Faculty Room 1	2394:12:42	1743:19:52	1275:45:16	88.91	69.44	31.524	3	43.852	

Hours of usage, idle times and energy consumption was rapidly discovered using IPMPlus

Analysis of idle time patterns and system utilization helped create powerful energy savings policies

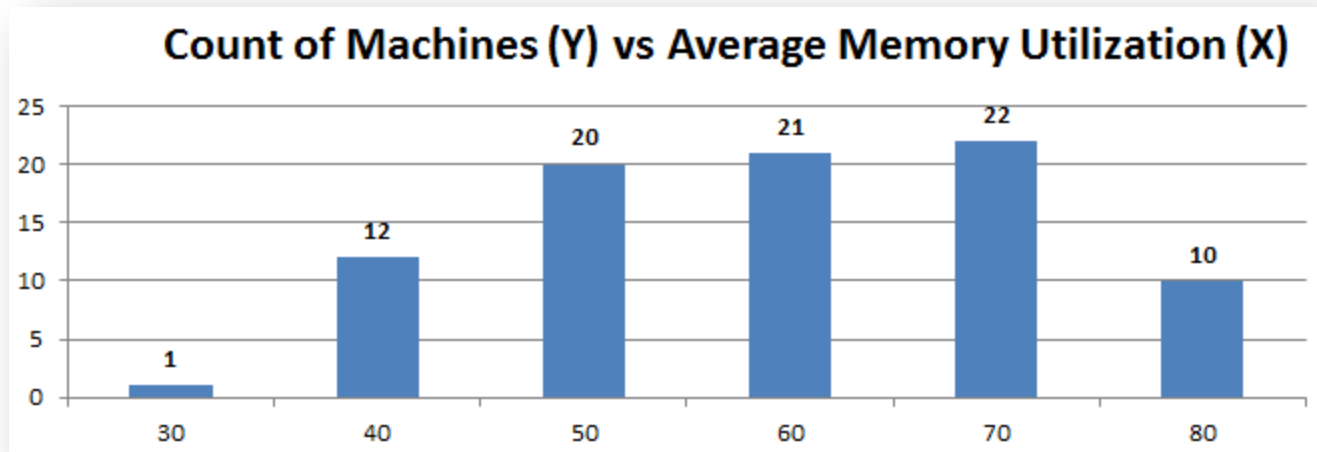
System's idle duration pattern

Idle Duration Category	Occurrences	Total Duration(hh:mm:ss)
0-5 mins	13008	517:41:8
5-10 mins	2843	336:2:33
10-30 mins	3146	968:3:54
30mins -1 hr	2586	1569:30:37
1 hr -2 hrs	867	1202:57:25
2 hrs-4 hrs	443	1217:58:33
>4 hrs	2262	22853:21:19
Total Idle Hours		28665:35:29

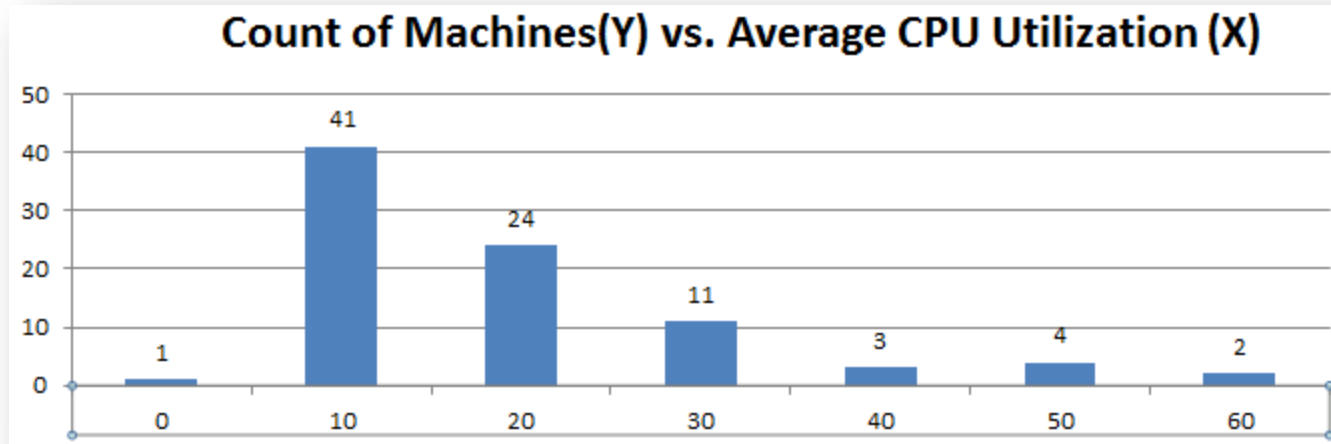
▼ entries Search all columns:

IP Address	Hostname	Total Memory (MB)	Average Memory (%)	Average CPU Utilization (%)	Total power Consumed (kWh)	Total On Time (hh:mm:ss)	Total Off Time (hh:mm:ss)	Network RX(Kb/s)	Network TX(Kb/s)	Date
172		1900	00	04	230.14	2284:1:35	234:55:43	00	00	2013-04-05 00:03:07
172		1900	00	46	182.58	533:55:17	1600:43:46	00	00	2013-04-05 09:02:16
172.		1015	00	18	181.24	825:28:18	1104:2:41	00	00	2013-04-05 09:18:49
172.		2038	00	27	163.18	302:7:0	1465:51:52	00	00	2013-04-05 07:54:18

IT asset utilization analytics helped MSRIT identify IT optimization opportunities and derive cost savings

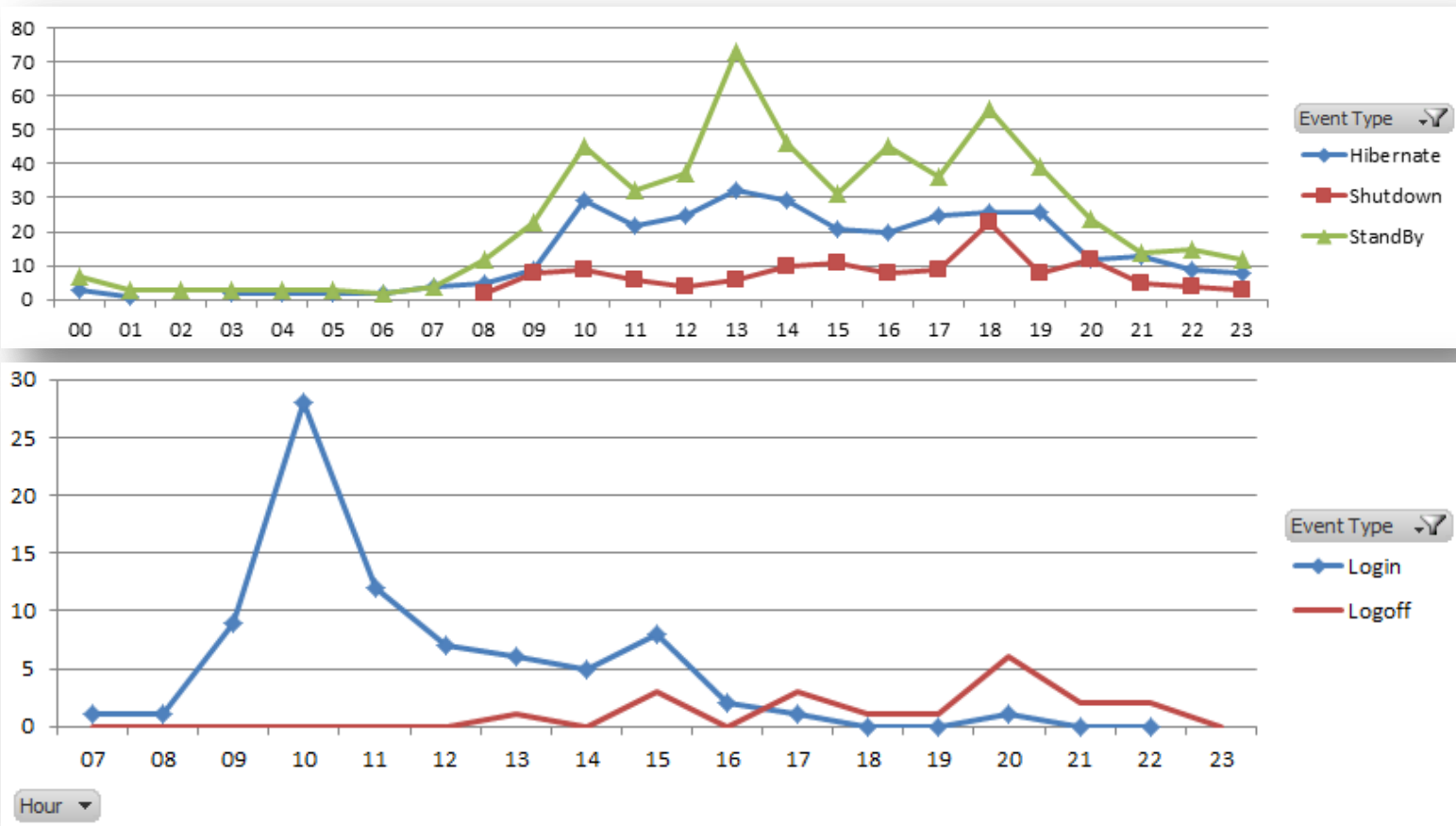


Average CPU Utilization of most machines less than 40%



With IPMPlus, machines standby, hibernate and shutdown through the day saving energy

- ▶ IPMPlus helped saved energy through the day by various power savings activities round the clock



IPMPlus helped MSRIT become the 1st Green IT Educational Campus in Bangalore

- ▲ 14.79 MWh of electricity saved
- ▼ 50% Reduction in energy consumed
- ▼ 6.72 Tonnes of CO2 emissions reduced
- ▲ 172 Trees Environmental impact equal to planting these many trees



Do you want to join the elite group? Become the first Green IT educational campus in your city with IPMPlus

Thank you

*Vigyanlabs*TM

info@vigyanlabs.com

www.vigyanlabs.com

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Our offices

Vigyanlabs Inc.
2711 N. Sepulveda Blvd #447, Manhattan Beach,
CA 90266, United States

Vigyanlabs Innovations Pvt Ltd
No. #71 (old 88/A), 37th B Cross, 26th Main Road,
Jayanagar 9th Block, Bangalore 560069
Phone: +91-80-26633022

Vigyanlabs Innovations Pvt Ltd
SJCE-STEP, JSS Technical Institution Campus,
Manasagangotri, Mysore – 570 0076
Phone: +91-821-241-3890