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An Energy hungry world is getting even hungrier!

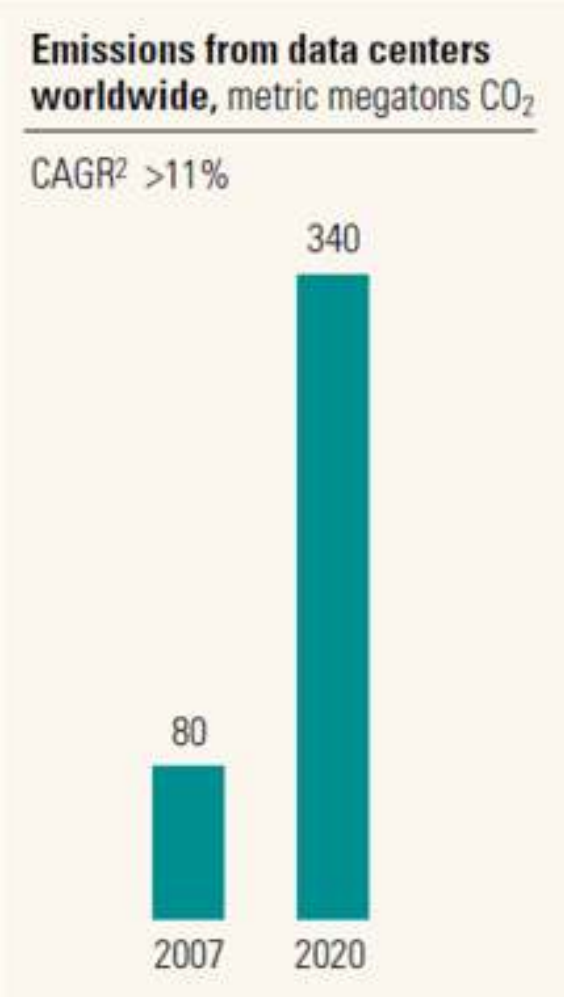
Gartner Survey Report says…

"**The energy consumption of India's information and communication technology infrastructure is forecast to grow by 30 per cent to over 31 trillion-watt hours by 2014**. In tandem with the rise in energy consumption carbon emissions levels from Indian enterprise ICT infrastructure is also expected to rise to 25 million metric tonnes by 2014 from less than 20 million metric tonnes in 2009. This is primarily due to the increase in ICT infrastructure base and the use of laptops."

Forrester Report says…

"Rising energy prices, coupled with heightened environmental concerns, will prompt IT organizations to assume more responsibility in reducing IT-related energy consumption. ….**We predict that in the future IT ops pros will consider power management a top requirement for overall client management, making PC power management a true pillar of client management** — not a standalone function.."

Invisible Losses



"McKinsey"

Energy Consumption in Servers

"At current pricing, the operating expense (energy) to support an x86 server will exceed the cost of that server …"
… within three years

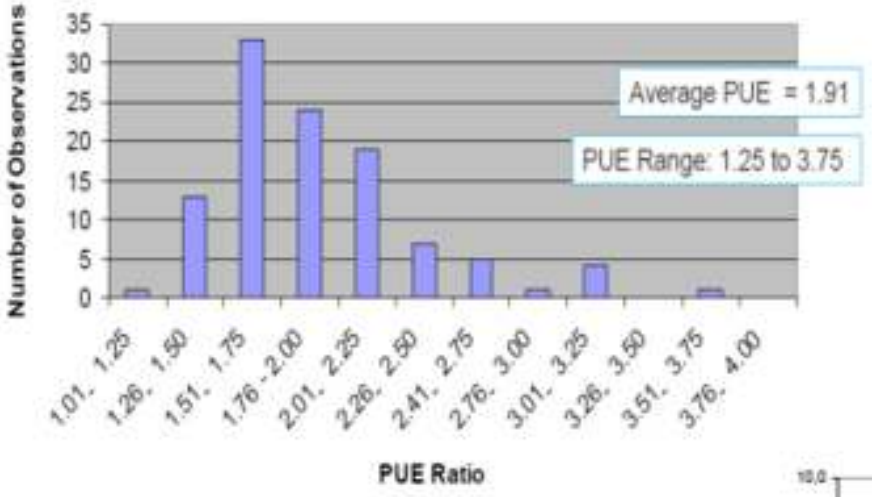
"Gartner"

"The average desktop PC wastes half of the energy it consumes."

"Climate Savers"

Data Centre Efficiencies can bring significant savings in energy Costs

PUE across US Data Centers

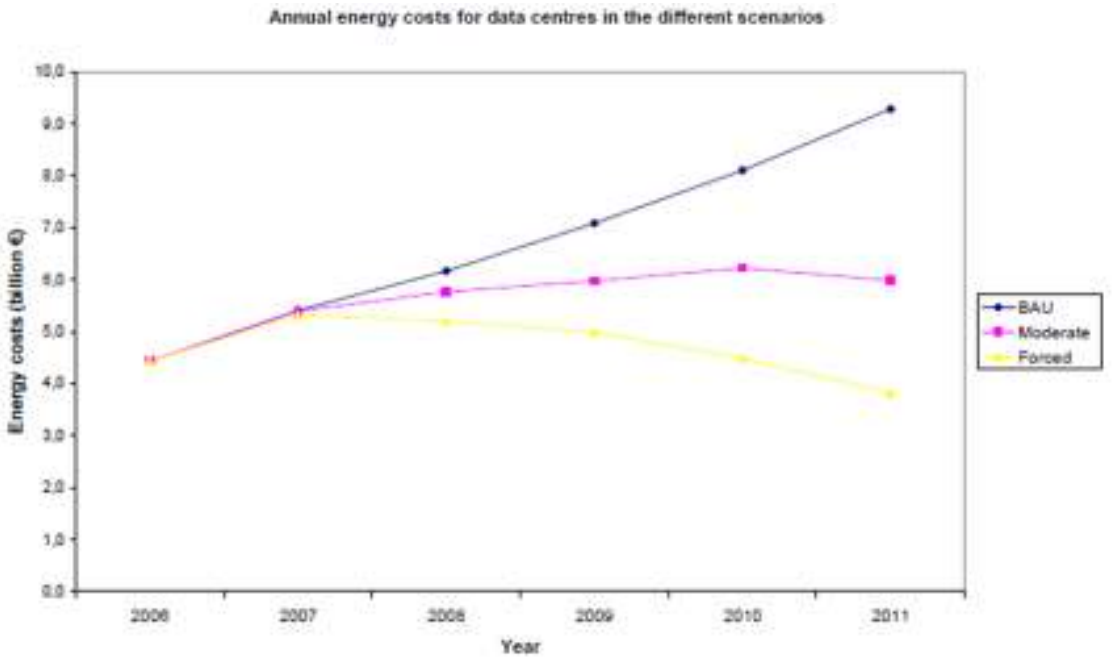


Source: Energy Star for Data Centers – EPA, Energy Star

There is room for significant energy savings in the Data Centre

Cost of Electric Power for European Data Centres – 2007-2011. – BAU – Business As Usual, Moderate – Moderate Power Savings, Forced – Forced Power Savings

Source: Energy Efficient Servers in Europe : The Efficient Servers Consortium



Hidden Assets

"You can find ghost servers in a lot of enterprises“

Gartner Inc.

In the two datacenter studies, 150 ghost servers were found in an installation of 1,800 servers, and 354 ghost servers were found in an installation of 3,500 servers.”

Darrell Dunn, Computerworld
September 26, 2007

What Can We Do?

Go Green with IPMPlus from Vigyanlabs

IPMPlus ... Power Savings Delivered

Traditional approach to Power Management

"Enable Power Savings on all the devices"
Is intrusive, disturbs users, impacts system performance

IPM Plus Approach to Power Management

"Discover, Measure, Analyze and Save"
"Policies based on power consumption, system usage, application usage"

Measurements - Power, User Activity (if any), System Resource Utilization (CPU, Memory, Network , I/O). Measurements by groups, individual nodes.
Analyze - System Workload Pattern, Applications Used, Identify suitable Power policy
Savings - Continuously Monitor Usage, Fine-tune Power Policies to optimize savings

IPMPlus ... Power Savings Delivered

Is an Energy Management Platform designed to manage power usage across various Infrastructure components like Desktops, Servers, UPS, PDU, Energy Meters and other devices

Is based on a US patent pending *Application Sensor Policy* that detects active applications and intelligently turns off power hungry components in a system without interrupting users' work.

IPMPlus Enterprise Console

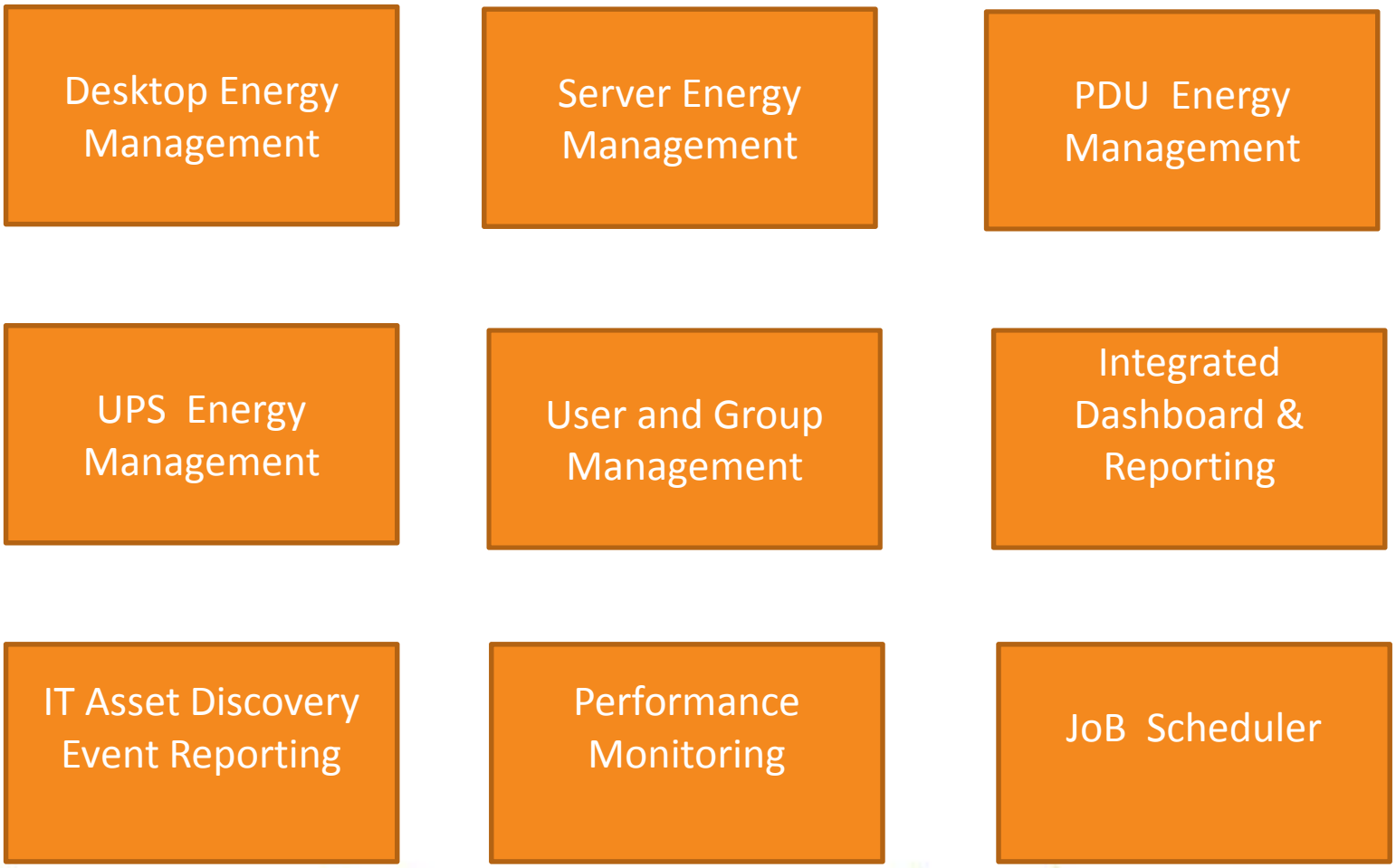
Has a simple two component model approach:

IPMPlus Agent running on individual machines and a Management Console running on a Servers responsible for monitoring those Agents

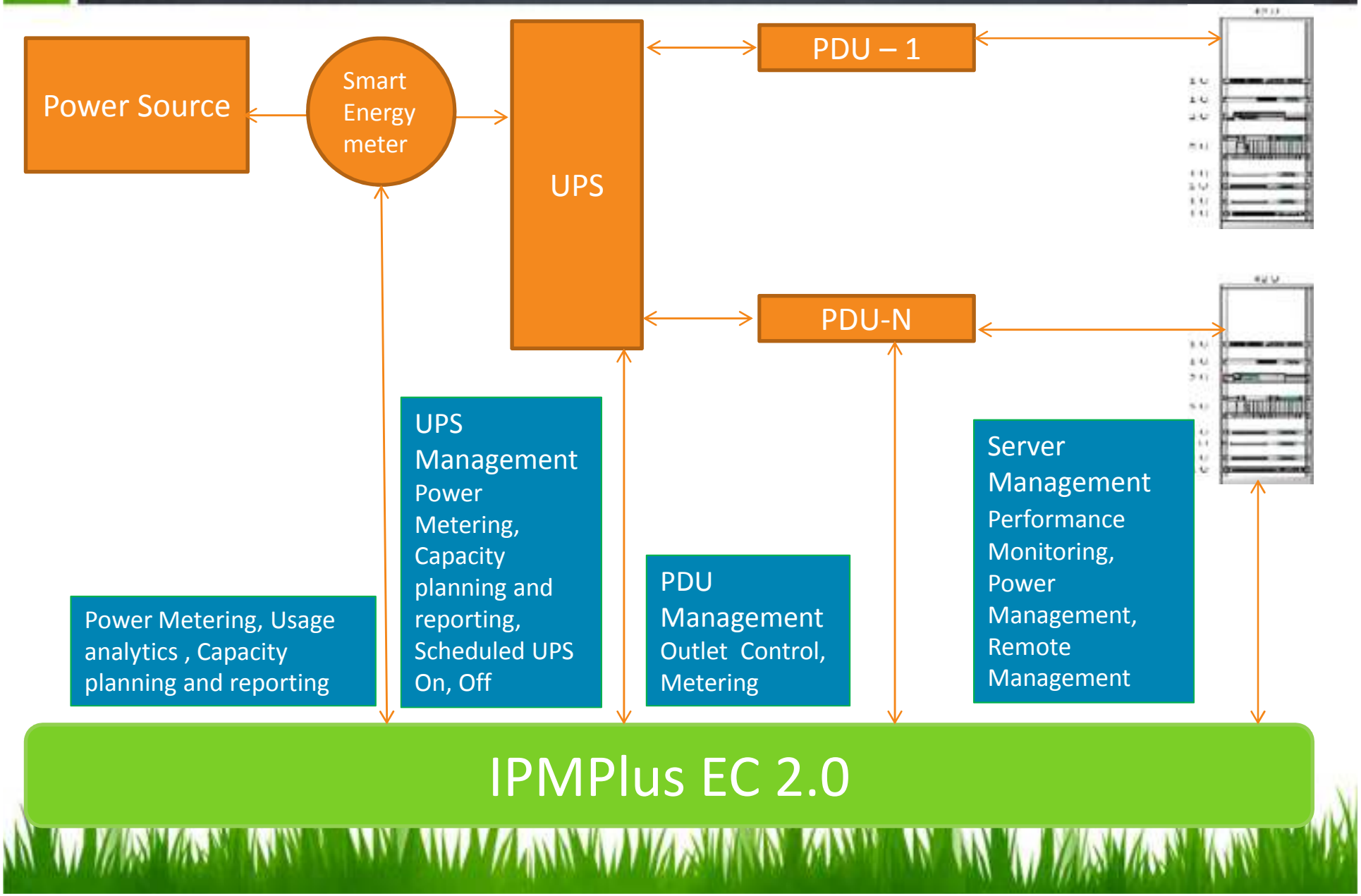
Non Computing devices like UPS, PDU are managed via SNMP

Helps to optimize power without compromising on performance

IPMPlus EC Functional View



IPMPlus EC In Action – Data Centre



IPMPlus Features

IPMPlus EE is a Web application that non-intrusively provides centralized power management solution for Enterprises.

Policies

- Enables power savings
- Customizable policies for every group of nodes or for each node

Reporting

- Power Consumption
- Power Savings
- System and IPMPlus Events
- Utilization Patterns to analyze and optimize policies

Management

- Schedule Jobs and power policies
- Remote Management
- Discover and Manage IT Assets

Power Scheme Customization

Workload pattern on various IT equipment like servers, changes throughout a day and across days in a week/month.

Power Saving policies have to be applied based on the workload pattern and the applications running.

IPMPlus provides a scheduler to schedule Jobs, Power Policy changes via a calendar.
For example – during the business hours 9.00 AM to 6.00 PM – when the load is high , the servers can be configured to run with higher performance.
During off-peak hours – when the load is low – servers can be configured to run with higher power savings

Application Sensor Policy

An *Application Sensor Policy* is based on our *US patent* pending technique, provides a means to associate a set of Application level rules to the power savings related settings defined in a *Power Scheme*.

App Sensor Policy always works with a Power Scheme.

For example, you can add a rule through Application Sensor Policy definition asking a Power Scheme not to apply a set of Power Policies when a particular application is active.

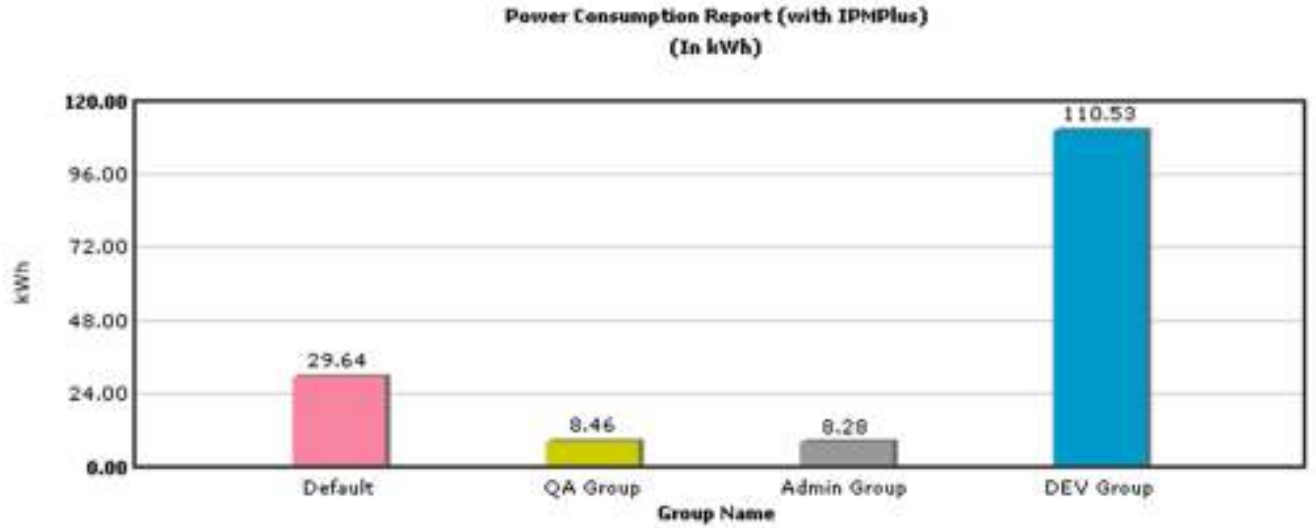
Application sensors enable power savings at a component level while the user continues to get the best user experience.

IPMPlus Dashboard

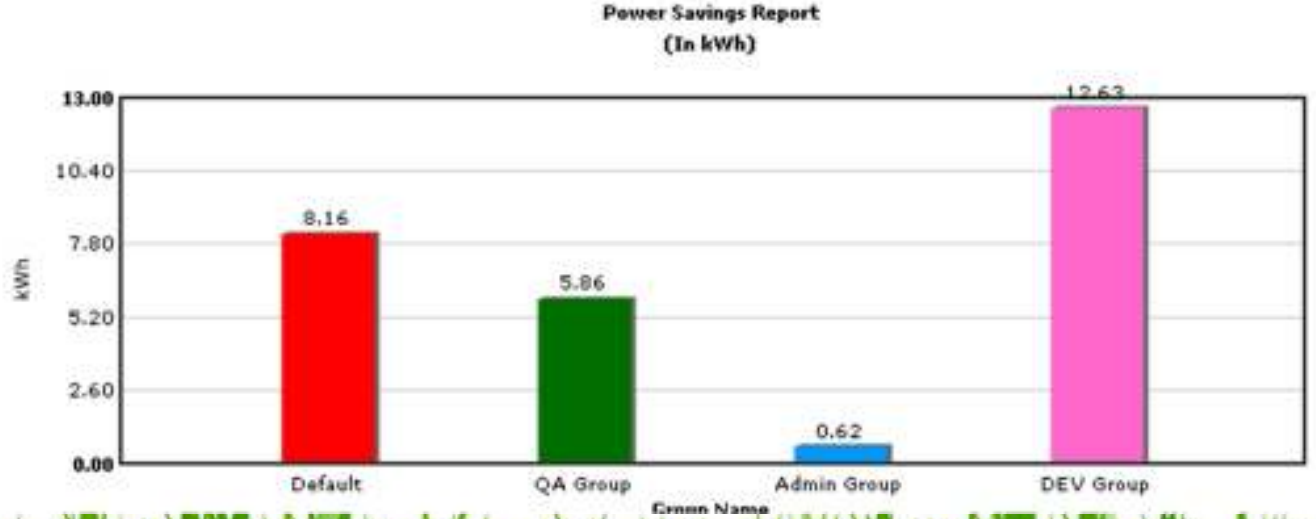
IPMPlus Asset Report

Group	Hostname	OS	Processor	IP Address	System Manufacturer	System Serial No.	System Model
DEV Group	vinlabsmyspc11	Microsoft Windows 7 Ultimate	Pentium(R) Dual-Core CPU E5400 @ 2.70GHz	192.168.1.11	LENOVO	ES06018534	H220 10028
DEV Group	vinlabsmyspc10	Ubuntu11.04 natty	Intel(R) Atom(TM) CPU 230 @ 1.60GHz	192.168.1.10	Compaq-Presario	CNX9111JTT	NP205AA-ACJ CQ2100IL
Default	vinlabsmyspc9	Microsoft Windows 7 Enterprise	Pentium(R) Dual-Core CPU E5400 @ 2.70GHz	192.168.1.9	Dell Inc.	5V5Y4BS	Inspiron 560s
QA Group	win2000_lpt	Microsoft Windows 2000 Professional	Mobile Intel(R) Pentium(R) 4 - M CPU 2.00GHz	192.168.1.17	Dell Computer Corporation	5ZJ571S	Latitude C640
Default	vinlabsmyspc6	Microsoft Windows 7	Intel(R) Core(TM)2 Duo	192.168.1.6	Compaq-Presario	INA8320B7V	KT480AA-ACJ

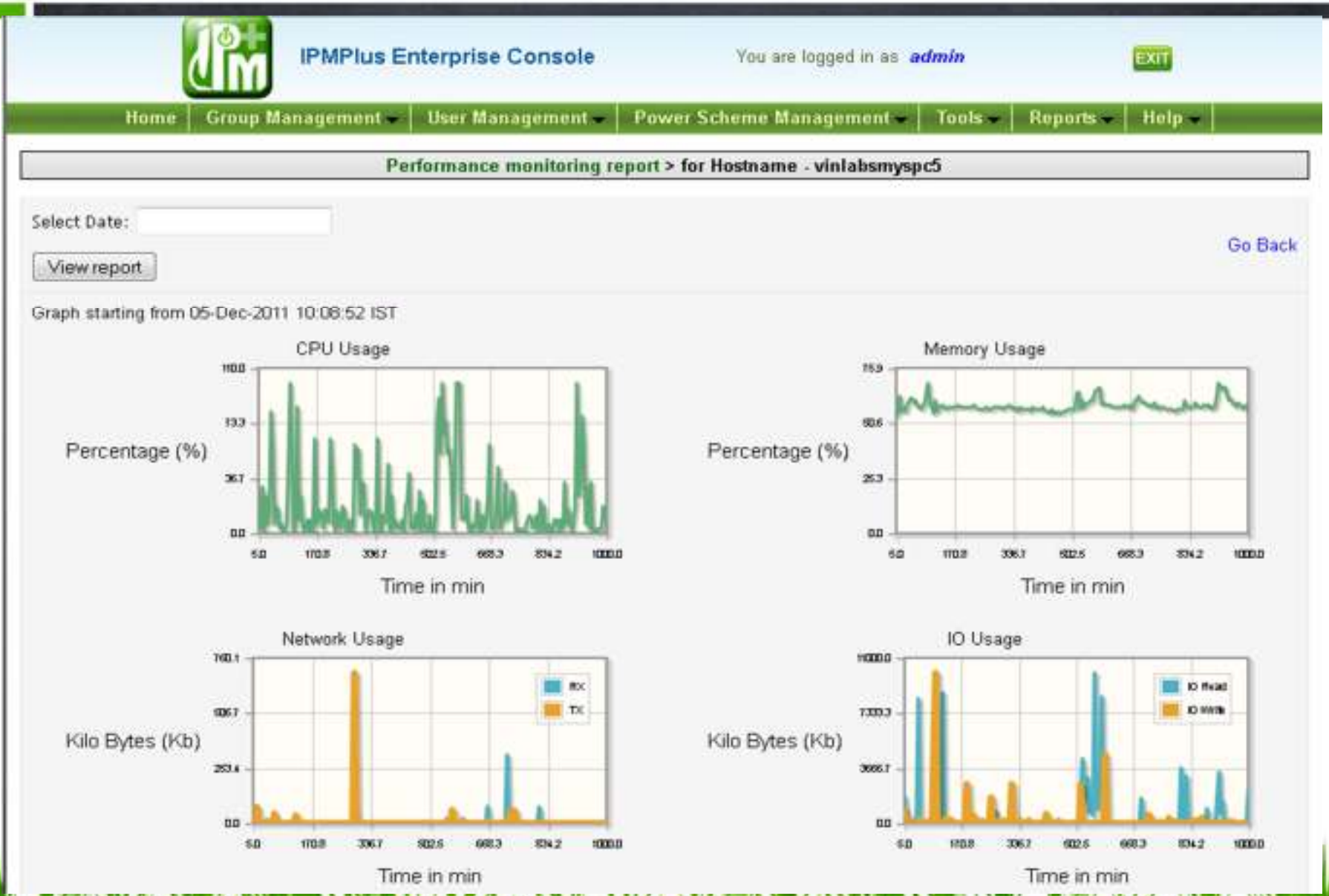
IPMPlus Group Wise Power Consumption and Savings



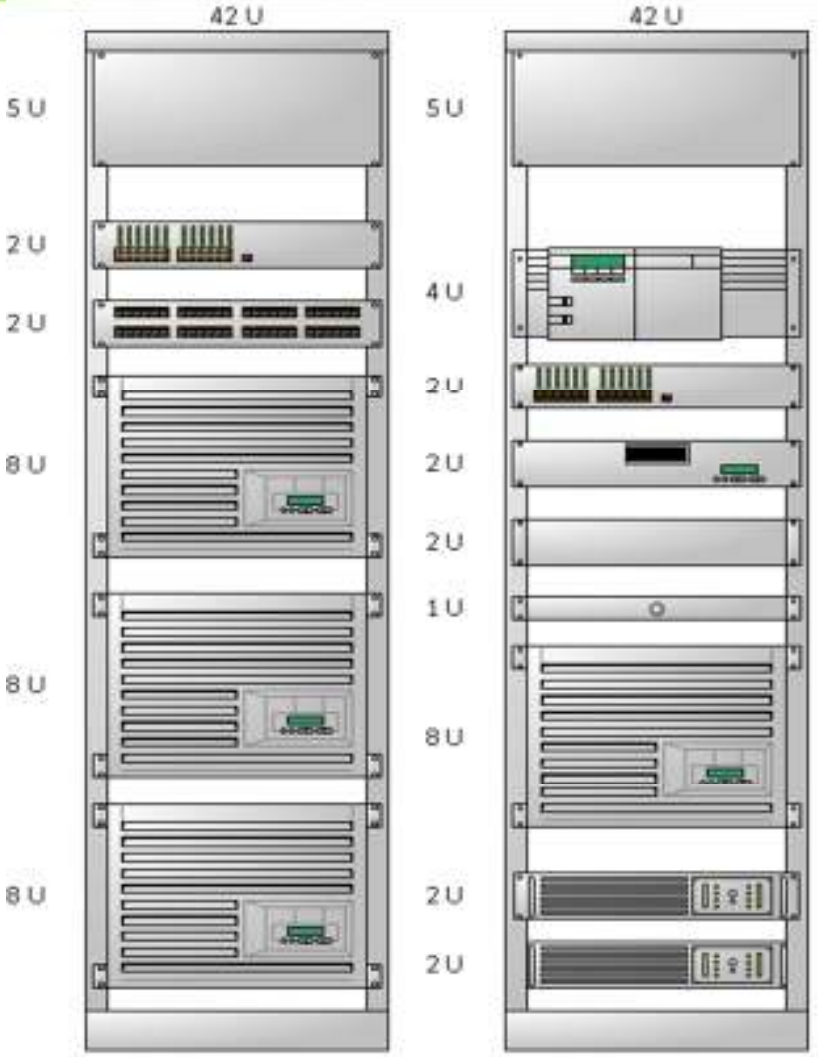
Power Savings through IPMPlus from 2011-09-01 to 2011-12-14



IPMPlus Performance Monitoring



IPMPlus Deployment



IPMPlus Enterprise Console

Manages Servers via
IPMPlus Agents,
PDU via SNMP,
Network Equipment via
PDU's
UPS via SNMP

Platform Supported
Servers – x86 – 32/64
Bit – Windows 2000,
2003, 2008
Linux - RHEL, CentOS,
Oracle Linux, Ubuntu
PDU – Raritan
UPS – APC/Schneider
Desktops – XP, Vista,
Windows 7, Ubuntu,
RHEL, Centos, Fedora

IPMPlus – Certifications, Integrations & Partnerships

IPMPlus is supported on

✓Windows 2000, XP, Vista, 2003, 2008 and Windows 7

✓Linux – 32 and 64 bit platforms

IPMPlus is Microsoft Windows Certified and is successfully tested and certified by IBM Labs at IBM Innovation Center, Bengaluru, India.

GoFrugal RPOS goes Green with IPMPlus integration

RPOS is a leading Retail Point of Sale Terminal Software from GoFrugal

GoFrugal Technologies RAYMEDI CONNECTING BUSINESS

IPMPlus supports
APC - UPS

IPMPlus integrates with Raritan intelligent PDU's

Awards, Recognitions

Microsoft Bizspark

IBM Global Entrepreneur

Bangalore IT.BIZ 2010

Leading 5 Startups

SJCE-STEP
(Supported by Dept of Science and Technology Govt. of India)

Seed funding

Take a Step Towards Greener IT Now

Your Computer is contributing to Global Warming!!!

Save Energy -> Save Money -> Save the Planet

You have the Power to Conserve

Contact Vigyanlabs for more details.

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