Cloud-aware
Network Management

Real-life case studies on how large enterprises moved away from traditional legacy tools to ManageEngine OpManager Enterprise Edition for cloud-aware network management experience…

Cloud is on the rise and for good reasons

Never before in our lives have we seen such a drastic transformation in IT as we see with Virtualization and cloud. There have been many innovations but none has gathered the support of CFOs, CIO, Sysadmins, Vendors, and End user together like the way these two did.

CFOs understand the cost benefits, CIOs understand the datacenter consolidations, Sysadmins understand reduced rack and wiring problems, Vendors understand that they have to sell solutions such as cloud-in-a-box and not just bits and pieces of hardware, and end-users, yes even they have to come to terms with IT as they start tasting the benefits of Amazon EC2 for some of their own requirements.

In this whitepaper we will see how these innovations gave rise to the need for a new age cloud-aware network monitoring software which makes large enterprise IT management easy.
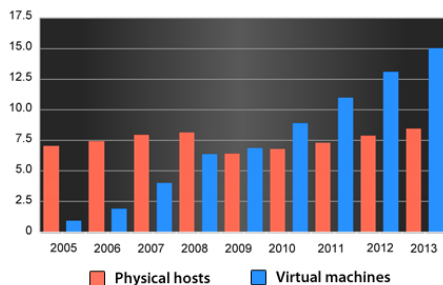
Case studies

Insurance Company	App running on VMware infrastructure serving thousands of registrations every day
Chip Manufacturing Company	Leading semi-conductor chip manufacturing company running its production controller app over VMware/citrix infrastructure.
Fashion store	On-line store with millions of visitors everyday.

Cisco UCS is the first cloud-in-a-box solutions that brought together blade servers, hypervisors, SAN, networking switches together in a single solution.

Virtualization and its Explosion:

IDC Server Virtualization Forecast states the rise in virtualization will result in VM proliferation and impact OS share. Number of physical servers shipments used for virtualization will grow to 1.7M+ in 2012 and 69% of workloads are expected to be virtualized by 2013. People all over the world are fast replacing their physical servers with Virtual servers.

The 2012 Gartner report for the Top 10 Business and Technology priorities for IT has included Cloud & Virtualization in the top10 technology list. When the budgets are constantly on the same level, if not decreasing, the only factors that can help IT are these two.

So what's stopping them from going cloud?

In case of cloud and virtualization all the roads seem to be leading to the same direction. The vendors are pushing it, the CFOs are welcoming it, and Sysadmins are loving it… so where is the roadblock? What is holding large enterprises from moving forward and embracing cloud now? Think about the answer we will cover it in the next couple of pages …

Physical hosts   **Virtual machines**

- 1.7M+ in server shipments at 15% CAGR by 2012 - DC, 2011 Server Virtualization Forecast
- 69% of workloads virtualized by 2013 - IDC, 2011, Market Analysis Perspective: Worldwide Datacenter Trends and Strategies
- VM/host density rising to 8.4 in 2013 - IDC, WW Server Virtualization Shipment Forecast, 2005–2013
- $106B spending on systems management software by 2014 - IDC, 2010, Worldwide Software 2010–2014 Forecast Summary
- 76% of enterprises pursuing private cloud strategy by 2012 - Thomas Bittman, Gartner Data Center Conference 2010

UCS   MATRIX   PURESYSTEMS

The three musketeers

Cisco UCS, HP Matrix, and IBM Pure Systems – these are the three cloud-in-a-box solutions available in the market today. You can run thousands of Virtual Servers on just one box. Imagine the space and cost savings.

Of all the three Cisco UCS is the leading vendor with partnerships such as VCloud and Flexpod, which are offerings of UCS+EMC and UCS+NetApp respectively. Together with these solutions Cisco UCS has a commanding share of the cloud-in-a-box market.

With great powers come great responsibility

"Lost the bad guy in emotion – spidey

Be it the spider man or IT guy the story is the same – with great powers come great responsibility.

While Spiderman is busy managing the bad guys of New York, our IT guys have to tackle the new Virtual infrastructure because its now more dynamic and most importantly, completely invisible.

"I lost a good server in V-MOTION – IT Admin

IT Management in earlier days was plain straight and easy as things were more physical and they didn't fly from rack to rack as they do now with v-motion. This emerges as the key striking comparison between IT yesterday and IT Today.
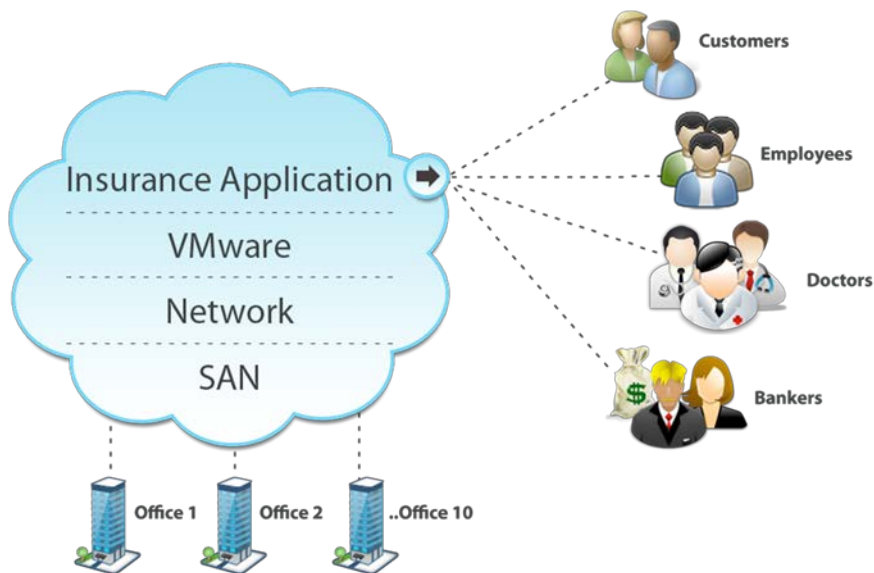

Earlier IT Mgmt:
- Was simple & visible
- Had only physical servers

Today's IT Mgmt:
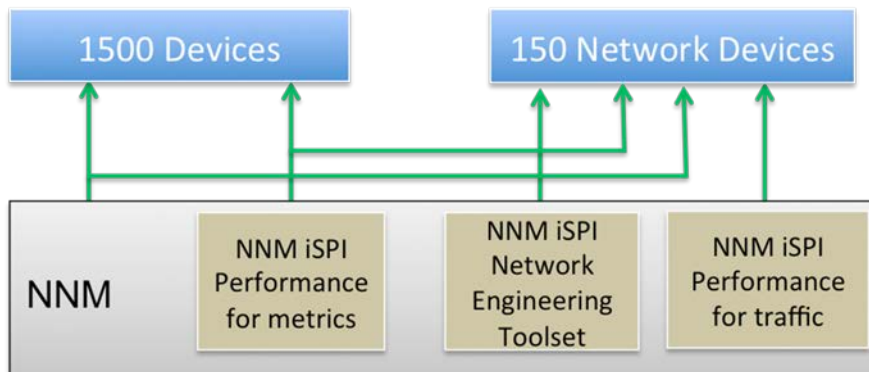- Is complex & invisible
- Has physical, Virtual servers & cloud

Case Study # 1

Supporting the networking and infrastructure division of such a large insurance organization is very challenging job. With people accessing it from everywhere it's a nightmare if the application is not available even for a single minute. The cost of downtime is not measure in thousands of dollars but in millions of dollars. Rest assured, if the downtime exceeds a day its going to be on the news and someone 's gonna be calling it a day at IT.

The Company

Leading Health Insurance Company in United States. Half of the enterprises in USA have their employees covered under the insurance schemes of this company. Has got datacenters in 10 states and hundreds of branch offices.

The Application

Agents and employees of different organizations log in to the insurance renewals and signup application to get their insurances renewed or created.

The Network

A fully virtualized VMWARE based server environment supported by EMC based storage and Cisco based networking devices.

The Tool

ManageEngine OpManager Enterprise Edition with NCM Plugin.

After moving to a completely virtualized environment the IT team decided to manage them with just the existing tools. They thought retro fitting an old age tool to new technology might just work.

But it didn't. The tools didn't understand the nuances of virtualization and started seeing every virtual machine as just a physical server.

The team then just started looking for tools in the market they could get the job done more neatly and at a price that is acceptable to all. They know that getting rid of the existing tools could save them from a million dollar renewal – the money they could to put to better use if they get an inexpensive tool.

ManageEngine OpManager

One of the technicians evaluated OpManager and felt that the probe-central model with virtualization support might be just the right tool to manage their 10 datacenters. They started evaluating the tool and ended up purchasing it for its price, features set, and simple user interface.


The OpManager Enterprise edition offered them network monitoring, network automation with scheduled backups and firmware upgrades, netflow based bandwidth monitoring, and VMware monitoring.

Case Study # 2

When we think of a manufacturing factory for some reasons our brain doesn't see IT. We can imagine robots, conveyor belts yeah sure but IT? Servers? We don't visualize them.

But on the contrary the more automated your process is the more IT dependent it is going to be. In this case of chip manufacturing the company was running a fully virtualized environment over VMware and with thousands of handheld devices from Citrix. In case of an outage on the central production application which controls the different stages of the chip production the amount of loss would be enormous as the whole set of chips have to be trashed.

To understand the impact you should know the size of these giant factories. A single factory could be as big as 6-foot ball fields wide and 10 football fields long. Scrapping the raw material on such a vast facility means we are talking about millions of dollars in waste.
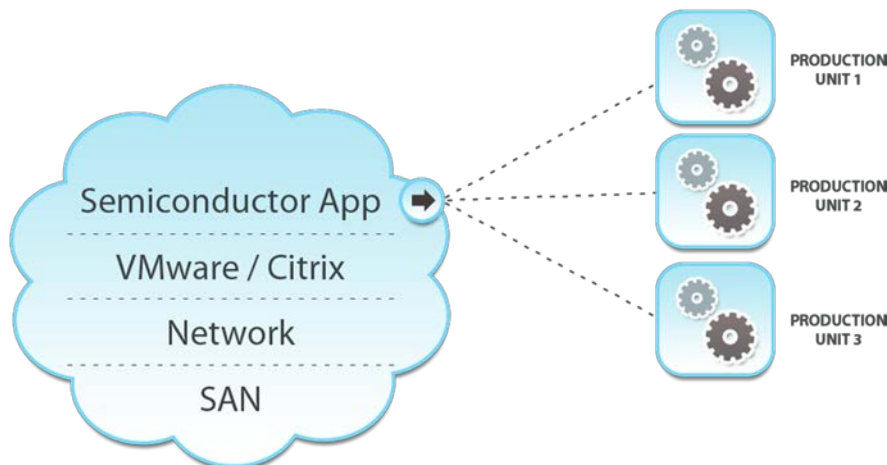
To add more complexity the IT team's head wanted to have a central console that can show the status of all the three facilities which are spread over the globe.
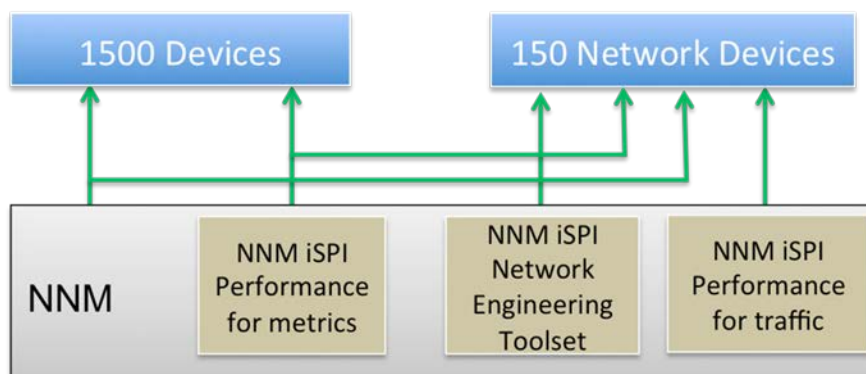
The Company

Large semi-conductor manufacturing Company with factories in Germany, Singapore, and New York.

The Application

Runs a 1000 server app,which controls the different stages of the chips at the factory. A huge development team watches the application every second and generates alerts directly to the monitoring tool.
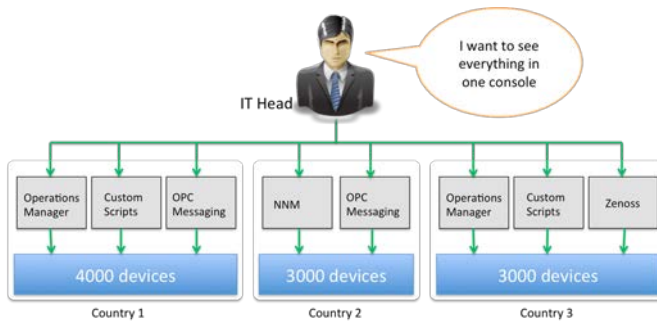
The Network

VMware based virtualization, Citrix based hand held devices, and NetApp based storage, plus tons of networking interfaces.
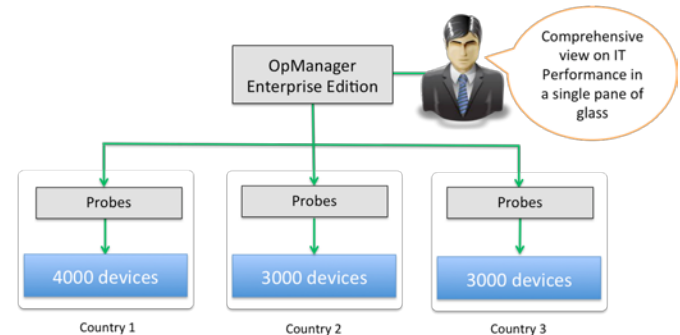
The Monitoring Tool

ManageEngine OpManager Enterprise Edition with NFA, NCM, and APM modules.

With each country having its own tools, it was a nightmare for the IT head.

ManageEngine OpManager
Now they are at cross roads. The IT head wants control on what's going on across all branch offices and the regional teams wants to hold on to their own tools. Then they decided to try a different tool that allows global management with a regional touch.

They evaluated OpManager Enterprise edition and felt it was a good fit for the global management. OpManager Enterprise offered them server monitoring, netflow based bandwidth monitoring, and network configuration management in one single bundle.

With probes at each location they can now have a single console that offers the complete picture of overall IT to the IT head and also gives the control back to the regional teams.

In addition to the server, network, and VMware monitoring they also used ManageEngine Applications Manager module, which monitors the application and sends alert into OpManager for a unified console.

They got rid of the old tools with a budget that is inexpensive than the older ones in place.

This is how their new architecture looked like after the started implementing OpManager Enterprise at each of the location.

Case Study #3

This is about a large fashion house that sells fashion accessories over the web from its online store.

With online store being the only channel for sales, the IT team's primary task was to find out if the site has any performance issues. Any degrade in service levels will impact revenues almost instantly and directly. Their online store was on top of their IT pyramid.

The IT team was organized into four major teams – the server team, the network team, SAN team and DB team. The major problem was that each team had its own view of IT management and they brought in different tools to the table.

From legacy Big4 tools to some proprietary software for specific storage needs there were a whole lot of tools for managing the 1000 devices they had across the two datacenters.
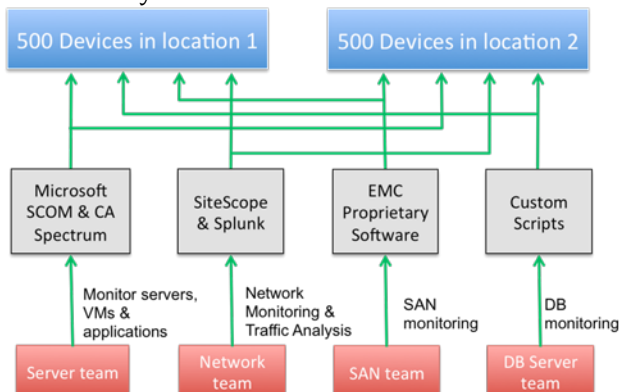
The Company

Large fashion house with on-line store that enables millions of transactions.

The Application

On-line store running on VMware based servers powering purchase of apparels and other items over the web.
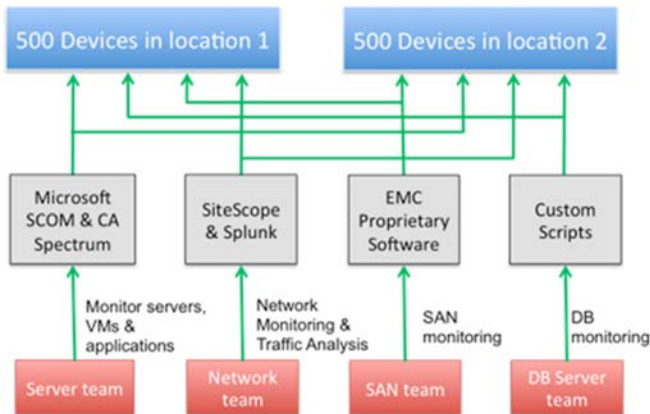
The Network

VMware based virtualization, and NetApp based storage, plus tons of networking interfaces.

The Monitoring Tool

ManageEngine OpManager Enterprise Edition with NFA, NCM, and APM modules for end-user experience.

This is how their IT management strategy looked like with multiple tools.

Needless to say this approach to monitoring a private cloud datacenter architecture was no good and soon they started looking for alternatives that were flexible for every team and also offers better cost to performance.

ManageEngine OpManager

They evaluated OpManager Enterprise edition and felt it was a good fit for every team's requirement. Soon those four teams started using the single OpManager enterprise console. This is how their new architecture looked like after the started implementing OpManager Enterprise.
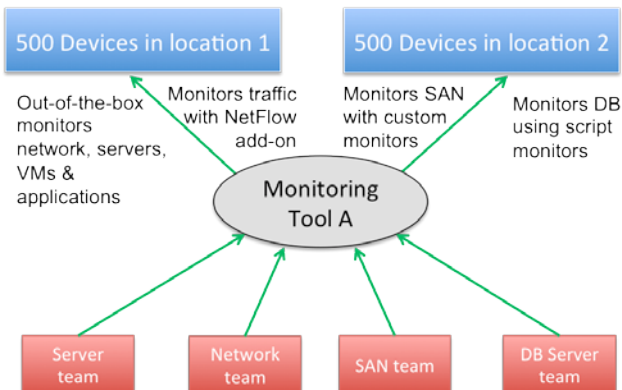
# Caught between legacy vs. v-something tools? Try ME

Most large enterprises today are facing the same question – should we retrofit our legacy tools for private cloud environments or should we wait for the pure-play virtualization only tools to grow up and handle everything.

Fortunately there is a better alternative today that offers private cloud monitoring capabilities without compromising on infrastructure and network. - ManageEngine OpManager Enterprise Edition.

Port-to-App Monitoring

From the switch port to the end-user-experience on the application OpManager can handle everything that's important for you at all the three levels – Infrastructure, Virtualization, and IT service level.

By default around 800 different networking, storage, and infrastructure device types are supported right from Cisco to NetApp. VMWare and Hyper-V are supported at the virtualization level. Java/.Net apps, Oracle/Cassandra, URLs and End-user-experience monitoring supported at the App level.
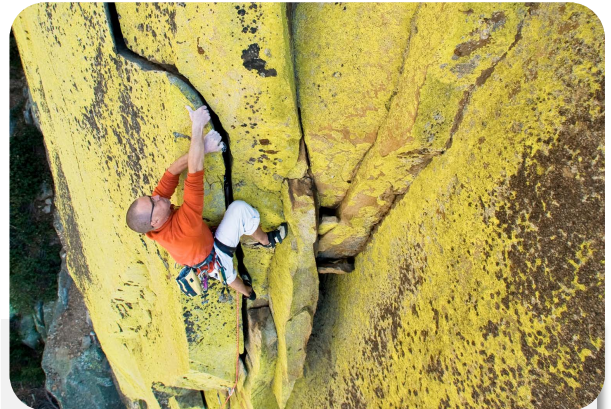

Top 5 challenges faced by most enterprise IT teams running private cloud …

1. Need a single pane of glass view for virtual and physical infrastructure

2. Monitor Network Devices

3. Monitor distributed IT

4. Lots of scalability

5. Within budget

Vmware + HyperV monitoring

Out-of-the box support for VMWare and Hyper-V hypevisors. More than 150 monitors and reports that make virtualization monitoring a breeze.
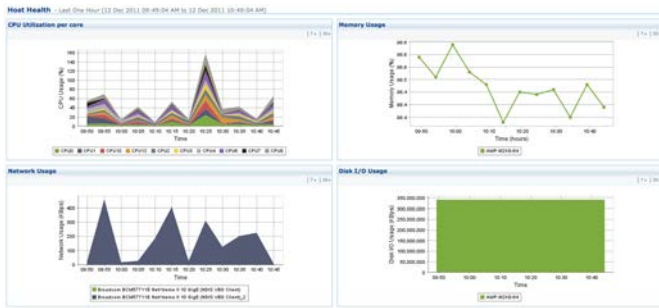

Distributed Monitoring with High Availability

Truly distributed monitoring with a secure probe-central model that offers both alerts as well as reports on the central console with inbuilt high availability options that doesn't cost you additional burden on budget.

In depth monitoring with plugins

Extendable modules that offer in-depth functionality in areas that you need. Netflow based bandwidth monitoring, Router backup and configuration manager, IP address manager, and End-user experience plus applications manager.
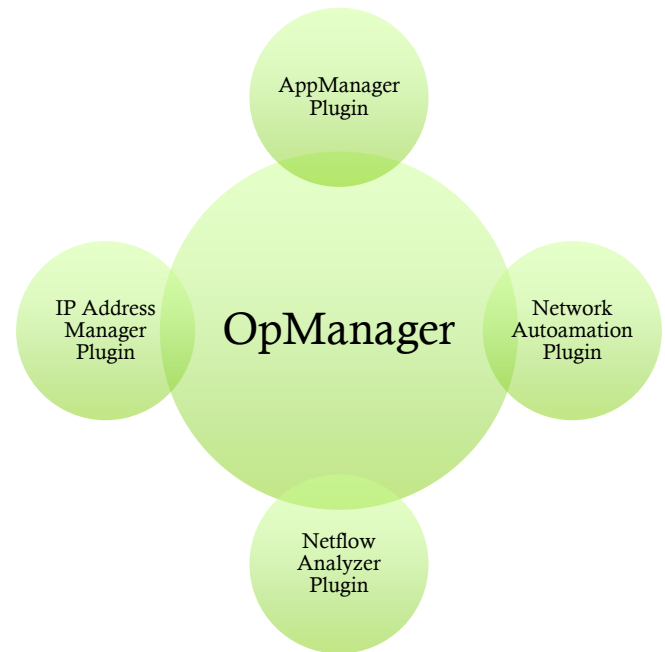
About the author

Dev Anand is currently the director of product management at ManageEngine handling the Network Performance Management Division where his core job is to identify and design tools that make the life of an IT guy simpler.

He is also the product manager for OpManager – the network management product of choice for over million Sysadmins and IT pulse – the Facebook type social networking site for IT teams. For any queries he can be reached at devanand@manageengine.com

That's me ! in front of a 1964 Ford Mustang. Looks stunning even today.

I have a passion for cars and I believe the best thing that happened to mankind is a car ! Caught this one in Japan.