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## *iManage Mobile Application; anywhere IT Management Solution*

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*Abstract: Today IT Management has been restricted to local, onsite support resources who use best in class toolsets such as “Nagios”, “ManageEngine”, “HP BSM”, IBM Tivoli” etc. for managing their local IT Infrastructure comprising of Servers, desktops, applications, Databases, Networks, Telcom etc.*

*These tools help in identifying infrastructure failures and business downtimes in real-time and provide some proactive alerts and notifications. These toolsets are on premise and installed in Data Centers and need 24x7 onsite resources to resolve issues. However system failures are unpredictable and business down time are to be avoided. Also resources / staff are not available on premise at Data Centers always hence we need to provide proactive alerts and notifications of system failures and downtimes to technical and business stakeholders immediately. With the adoption of mobility the need for iMANAGE is imperative which seeks to inform, alert and notify stakeholders anywhere on failures, downtimes and given them the right info on IT Infrastructure Performance & Availability. IMS i.e. Infrastructure Management Suite is a comprehensive integrated IT infrastructure management suite, with complete set of features that are needed to manage IT infrastructure of an organization in an efficient and standard compliant and intuitive manner.*

### I. INTRODUCTION

#### A. Existing systems

Emergence of newer technologies, IT becoming integral part of business, regular attrition of IT administrators, mobile work cultures have increased the complexity of IT infrastructure management in today’s world. CIO must be equipped adequately to handle the challenges posed to them in order to assure the smooth running of their business IT environment. CIO and IT managers are looking towards implementing proven IT policies to handle these challenges effectively and to implement the processes, integrated and standard compliant products have become the need of the hour. Till today IT Management has been restricted to local, onsite support resources who use best in class toolsets such as “Nagios”, “ManageEngine”, “HP BSM”, IBM Tivoli” etc. for managing their local IT Infrastructure comprising of Servers, desktops, applications, Databases, Networks, Telcom etc. These tools help in identifying infrastructure failures and business downtimes in real-time and some proactive alerts and notifications.

### B. Weakness of existing toolsets

- Toolsets are on premise and installed in Data Centres and need 24x7 onsite resources to resolve issues. However system failures are unpredictable and business down time are to be avoided.
- Also resources / staff are not available on premise at Data Centres always hence we need to provide proactive alerts and notifications of system failures and downtimes to technical and business stakeholders immediately.

### C. Need

With the adoption of mobility the need for **iMANAGE** is imperative which seeks to inform, alert and notify stakeholders anywhere on failures, downtimes and given them the right info on IT Infrastructure Performance & Availability. IMS is a comprehensive integrated IT infrastructure management suite, with complete set of features that are needed to manage IT infrastructure of an organization in an efficient and standard compliant and intuitive manner.

### D. Application

To provide IT Technicians / System Admins, Network admins the right information anywhere using a mobile device to monitor & Auto check for key performance indicators of any IT Assets such as

- Desktops
- Servers
- Network appliances or devices and
- Applications.

### E. Basic concept

Android is a Linux-based operating system designed primarily for touch-screen mobile devices such as smartphones and tablet computers. It is currently developed by Google in conjunction with the Open Handset Alliance. It is programmed in C, C++, and JAVA.

Applications are developed in the Java language using the Android software development kit (SDK). The SDK includes a comprehensive set of development tools, including a debugger, software libraries, a handset emulator based on QEMU, documentation, sample code, and tutorials.

The officially supported integrated development environment (IDE) is Eclipse using the Android Development Tools (ADT) plugin. Other development tools are available, including a Native Development Kit for applications or extensions in C or C++, Google App Inventor, a visual environment for novice programmers, and various cross platform mobile web applications frameworks.

Additionally, Android has a large community of developers writing applications ("apps") that extend the functionality of devices, written primarily in a customized version of Java. They are available for download through Google Play or third-party sites. In October 2012, there were approximately 700,000 apps available for Android, and the estimated number of applications downloaded from Google Play was 25 billion.

The latest version which has been developed is android OS 4.0. Android OS 4.0 a platform for phones, tablets, and more. It builds on the things people love most about Android — easy multitasking, rich notifications, customizable home screens, resizable widgets, and deep interactivity — and adds powerful new ways of communicating and sharing.

**II. AMS AND OBJECTIVES**

To provide IT Technicians / System Admins, Network admins the right information anywhere using an android mobile device to check:

- \* Device Availability KPI (ICMP, Host, IP, Port)
- \* Device Performance KPI (CPU, Memory, Disk, Network I/O)
- \* Log Information
- \* Threshold violation such as:
  - \* CPU spike
  - \* Memory leaks
  - \* Disk failure / space running out
  - \* Network Latency, utilization
  - \* Service failures
  - \* Port / IP / Host unavailable or down
- \* To forward failure info via mobile device to further technical staff for resolution and problem fixing
- \* To track IT Assets and categorize the same
- \* Create System Performance Reports, (weekly ,monthly ,or customized) on a scheduled basis.

**III. LITERATURE SURVEY**

There are many toolsets such as “NAGIOS”, ”ManageEngine”,” HP BSM”,”IBM Tivoli” for managing the local IT infrastructure such as desktops, servers, network devices and applications. But these toolsets are on premise and need 24\*7 onsite resources to resolve these issues.

Following are some applications which are currently being used.

1. Nagios
2. ManageEngine
3. IBM Tivoli

*1. Nagios*

Nagios is a powerful monitoring system that enables organizations to identify and resolve IT infrastructure problems before they affect critical business processes.

*Features*

1. *Comprehensive monitoring:* Capabilities to monitor applications, services, operating systems, network protocols, system metrics and infrastructure components with a single tool .Powerful script APIs allow easy monitoring of in-house and custom applications, services, and systems
2. *Visibility:* Centralized view of entire monitored IT infrastructure &Detailed status information available through web interface

3. *Awareness*: Fast detection of infrastructure outages. Alerts can be delivered to technical staff via email or SMS. Escalation capabilities ensure alert notifications reach the right people
4. *Problem Remediation*: Alert acknowledgments provide communication on known issues and problem response. Event handlers allow automatic restart of failed applications and services
5. *Proactive Planning*: *Trending* and capacity planning add-ons ensure you're aware of aging infrastructure. Scheduled downtime allows for alert suppression during infrastructure upgrades
6. *Reporting*: Availability reports ensure SLAs are being met. Historical reports provide record of alerts, notifications, outages, and alert response
7. *Multi-Tenant Capabilities*: Multi-user access to web interface allows stake holders to view infrastructure status. User-specific views ensures clients see only their infrastructure components
8. *Extendable Architecture*: Integration with in-house and third-party applications is easy with multiple APIs. Hundreds of community-developed add-ons extend core Nagios functionality.

## 2. *ManageEngine*

**ManageEngine Asset Explorer** is asset management software which manages IT assets. It was developed by ManageEngine from Zoho Corporation. It scans and audits workstations across a network (connected by LAN, WAN and VPN) available in each of the workstations. It requires an initial license fee and annual maintenance fees based on the number of assets and nodes. The free edition has fully functional features but is restricted to 20 nodes.

### *Features*

ManageEngine AssetExplorer scans all Windows and Linux workstations, and other network devices such as printers, routers, and switches. The scan provides details about installed hardware and software. It uses focused asset groups for better management and control, which allows asset ownership details to be tracked (to get a clear picture of who owns what). AssetExplorer also manages group licensed software and tracks total number of actual installations versus purchased software licenses.

## IV. OVERALL DESCRIPTION

***"iManage"*** is a mobile app that seeks to Monitor & Auto check for key performance indicators of any IT Assets such as

- Desktops
- Servers
- Network appliances or devices and
- Applications.

### A. *Components of system*

There are 3 types of devices

1. Servers (Windows / Linux/ UNIX)
2. Applications
3. Network Devices

1. *Servers:* In case of servers this app using WMI agents in java will be able to monitor:
  - Availability of Port and Host.
  - Performance Monitoring of CPU, Memory, Disk space.
  - Service monitoring (services running on the server should be listed in the app and the user can be free to select any service to monitor).
  - There's an Option to restart service if the same is down.
  - Log Monitoring: App should be able to get alarms on high security logs.
  - Also options to Login, Restart, Shut down server from the mobile app
2. *Application:* Checks for the availability of IIS Server & Gives the response time of the IIS Server Website

Attributes monitored:

- Bytes Transferred
  - Files Transferred
  - Connection Statistics
  - Anonymous Users
  - Non Anonymous Users
3. *Network Devices:* Measures Bandwidth and Traffic to Optimize Bandwidth Allocation, Monitoring WAN Links Proactively & Ensure High Network Availability, Monitor Router Performance (CPU Utilization, Memory Utilization, Errors and Discards, etc.).

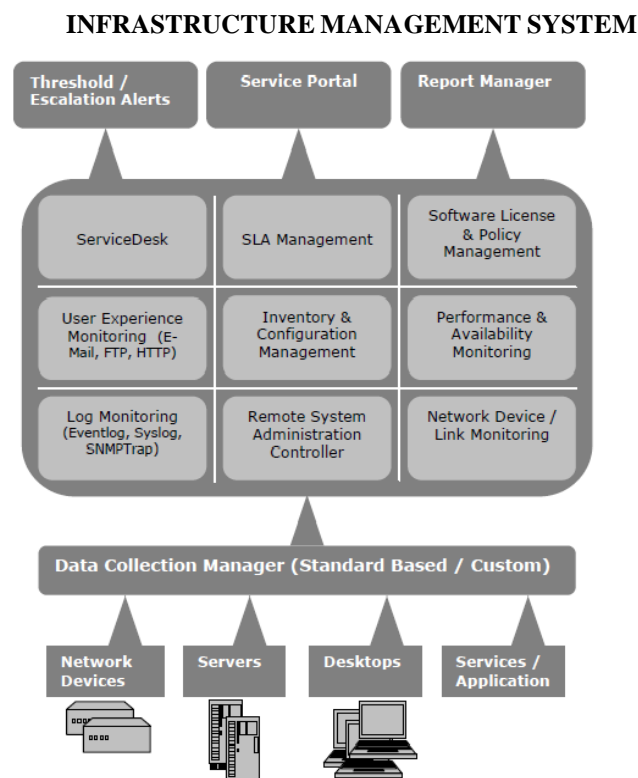


Fig1. Infrastructure Management Suite IMS

IMS offers integrated set of features to help the CIO's and IT managers to handle the challenges faced by them efficiently and stay in control of their IT environment in a Process oriented manner.

IMS comes with simple, easy to use console and web-based interface and simplifies the complexity of management. Executive dashboards provide quick view of the IT environment on a single click. IMS supports distributed architecture where the solution can be deployed in a single server or distributed over N servers based on the scalability requirements.

## V. DEPLOYMENT OVERVIEW

## Deployment View

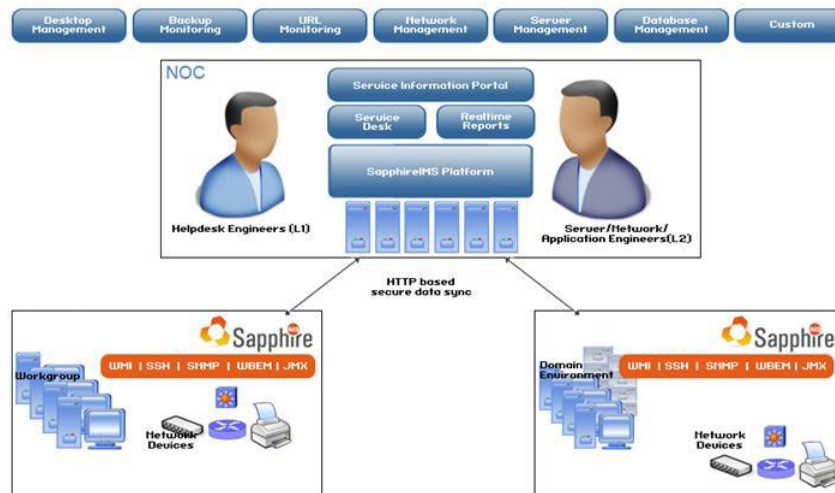


Fig 2. Deployment View

The above architectural diagram depicts that, IMS remote data collector or probes can be deployed in remote offices for localizing the data collection and the collected data shall be sent to the central server through secure HTTP link. This approach makes sure that, the WAN bandwidth is optimally utilized. If the scalability demands are high, the database can be installed on separate server and application tier can be on separate server and this can be achieved seamlessly without re-architecting the entire solution.

IMS also provides support for unified agent architecture using which devices/systems can be managed seamlessly and all the agents communicate with the central server through web services interface. The communication between the agents, probes and the central server is encrypted and is completely secured.

The probes perform the job of replication agent or port multiplexer as they talk to the central server behalf of the agents running in the local environment.

## VI. SAMPLE ARCHITECTURAL OVERVIEW

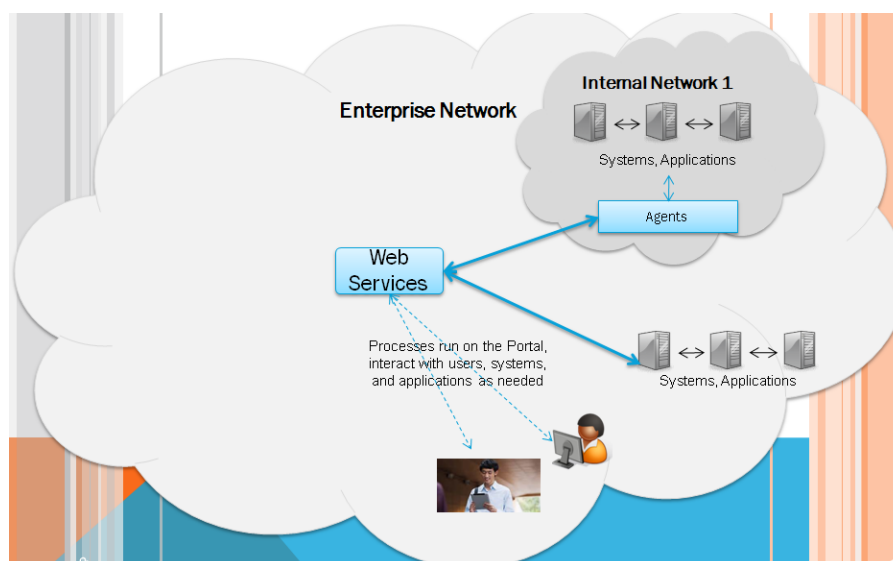


Fig 3. Architecture Diagram

## VII. CONCLUSION

In this paper we have given the overall idea of how we could manage the variety of IT infrastructures using a mobile application. Thus making it easier for the system administrators to manage and observe the functioning of these devices without being present there 24x7. It is a useful technology that can be used in large scale and small scale companies, to effectively manage the IT infrastructure.

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