MASS DATA SHEET

Managed Application Server Solution

An Agent based system every managed desktop or laptop must have

Computer Troubleshooters Yaletown

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Introduction

Building a network operations center (NOC) is one of the largest costs and one of biggest challenges associated with delivering an effective managed service. It requires extensive capital expenditure and needs operational expertise and everyday discipline to deliver what is being promised to a customer. It is estimated that software costs are only 3%-5% of the cost of delivering a managed service, and the costs of operating a NOC are typically 12-14 times more than the cost of software.

Solution

MASS (Managed Application Server Solution) is a hosted remote management platform which meets the criteria of a mature managed services and remote management delivery platform. Setting up customers is as easy as filling out a web form and installing agents on desktops and servers. A service provider does not have to purchase hardware to host MASS, track license usage or manage the software. Their engineers can use MASS to manage desktops, servers, SNMP network devices and applications from a single web portal and remote administration console. All MASS components operate outbound over standard internet ports - port 443 and port 16145 utilizing 128-bit encrypted connections. MASS does not require firewall or NAT reconfiguration or any in-bound access. Furthermore, the MASS technology has the follow qualities:

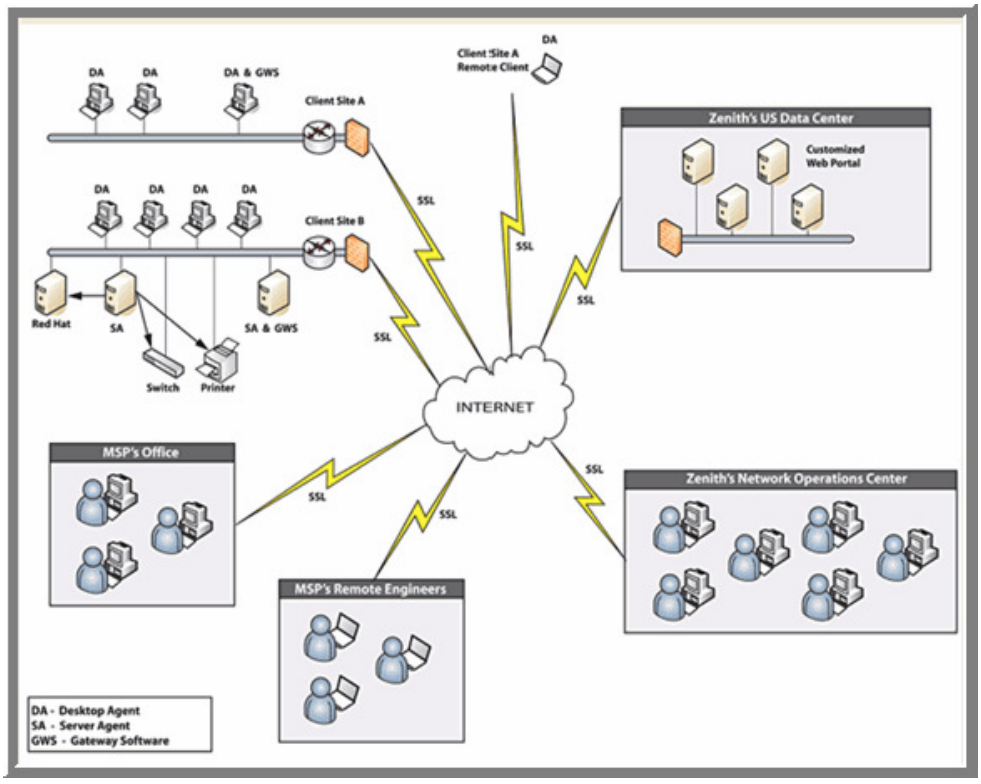
- It is easy to provision and install
- It does not require a VPN to the customer site or any firewall NAT configuration
- It must be an integrated offering eliminating the service provider's need to "cobble together" a full solution.

HOW IT WORKS:

Architecture

The MASS Application has multiple components:

- Agents are installed on every desktop and server that will be managed.



- The data Center Application handles all the analytical processing, alerting,reporting and controls the interaction with the agents.
- A Web Portal and Remote Administration Console for the IT service providers' engineers as well as engineers at the Computer Troubleshooters NOC to analyze and troubleshoot problems.
- An optional gateway software component which caches downloads for desktops such as patches and updates for the agents. This allows downloads to occur from a local source rather than each agent going out to the data center and downloading patches and updates separately

The Components

Desktop/Laptop Agent - MASS is an agent based system. Every managed desktop or laptop must have the MASS agent installed. The agents can be deployed manually, with a remote deployment tool provided by Computer Troubleshooters or by login scripts/GPOs. The desktop agent collects system configurations, asset information (software and hardware), Microsoft patch status, S.M.A.R.T. harddrive statistics, and antivirus and anti-spyware information which are then sent to the Data Center Application. The Desktop Agent is also responsible for executing patch and software deployments, uninstall routines, maintenance activities and remote control initiation. The Desktop Agent performs its functions based on instructions received from the Data

Server Agent **-** Like the Desktop Agent, the Server Agent must be installed on every Windows Server that will be monitored or managed. The Server Agent monitors parameters on the host server and can be directed to monitor Linux servers and SNMP network devices. The Server Agent continuously monitors performance counters, log files,event logs, WMI data and a myriad of other critical files and information sources transmitting this information to the 4 Data Center Application for further processing, analysis and alerting. When an issue occurs on the host server or on other devices being monitored by the Server Agent, the agent sends the alert to the Data Center for immediate processing and any necessary alerting. Alerts are posted on the MASS web portal, are entered into our ticketing system or can be sent by e-mail/cell phone. The Server Agent also collication

Data Center Application (DCA) - The DCA is responsible for alert management, analytical processing, managing secure connections with the Server and Desktop Agents, ticket workflow management and running Computer Troubleshooters' internal NOCCS (Network Operations Center Control Software). The DCA resides on a highly redundant server farm. Computer Troubleshooters hosts its primary servers at Hurricane Electric in Fremont, CA which is rated among the top ten data centers in the world. Computer Troubleshooters also has a high availability site in Pittsburgh, PA with Expedient Communications. The DCA is the brains of the MASS solution which allows the DAs and SAs to be light-weight minimizing the impact on managed target machines. Lastly, the hosted architecture eliminates the need for IT service providers to buy and maintain hardware and software.

Web Portal and Remote Administration Console - The MASS software has a web portal front-end for viewing alerts, tickets, messages, reports and allows service providers to communicate with the Computer Troubleshooters NOC. Access to the portal is role based allowing the IT service provider to grant access to the software and end-clients based on an engineer's profile and client assignment. Limited access to the web portal may be granted to end-clients by the IT service provider. The remote administration console enables a partner's engineers to remotely and securely manage desktops and servers at client locations through the Internet. MASS's remote control features do not require any reconfiguration of the firewall and have strong logging and audit trail features.

Gateway Component - Each Desktop Agent separately downloading patches, updates or software from the internet is bandwidth-intensive. The gateway component is installed on one machine on a local area network and it functions like a download cache/proxy. The gateway component can be installed on any desktop or server running Windows 2000 or higher and should be online 24 hours each day. The gateway component contains an embedded web server or can be installed on a server running IIS 5.0 or above. Any MASS Desktop Agents installed at a client site will communicate to the gateway using standard HTTP instead of utilizing bandwidth communicating with the Data Center directly.

The People, Infrastructure and Systems

Computer Troubleshooters monitors and manages over 120,000 devices across 4500 customer sites for 400 IT service providers. This is accomplished by a combination of people, infrastructure and systems to deliver a high-level of service quality.

People **-** Neocode **Software** organizes its network operations center by teams, headed by a team leader and a service delivery manager, with a team handling a certain number of partners creating a single point of contact and accountability. Besides the teams there is a server expert group with extensive expertise with applications such as Exchange, SQL Server, and Citrix (we support over 40 commercial applications). Lastly, there is a security research group that analyzes patches and determines which machines they are to be deployed to as well as keeping track of releases by antivirus vendors regarding updates and zero-day vulnerabilities.

Infrastructure- Neocode **Software's** NOC is located in Mumbai, India in an 80,000 sq ft facility with redundant power sources and internet bandwidth from six different providers. The software and technology (MASS) that drives Neocode Software's service is hosted at co-location facilities in Fremont, CA (Hurricane Electric) and Pittsburgh, PA (Expedient Communications). Security has been a key area of emphasis at Neocode Software with measures including but not limited to biometric access control, video surveillance and access control auditing.

Systems - Neocode **Software** has built a variety of technology and processes to provide a high level of proactive maintenance from its NOC. The first being the early warning system and pattern detection engine which is adatabase of 16,000 different error conditions with corresponding resolutions. When our software detects events from logs, performance counters, and registry values based on the database of such error conditions it automatically creates a ticket for the NOC engineer who will then take action based on the corresponding resolution and escalation matrix. Secondly, the NOC operations system automatically routes problems by engineers and has a SLA tracker which is used by the service managers to deliver timely service and to prevent issues from falling through the cracks. Engineers performing any troubleshooting or analysis follow a "runbook" that defines actions to be taken against different problems and anything falling outside of this runbook is immediately escalated to the server expert group for action. These systems have evolved over 3 years of providing service and are being constantly updated to improve the quality of service. All interaction with partners is via a ticketing system (using the ticketing system within the MASS software or Connectwise) except for emergency situations such as server down or disk failure issues where phone calls are made. This discipline minimizes the chance of an alert being missed or a problem not being addressed in time.