



NETCRAFT COMMUNICATIONS INC.

White Paper

Versiera

WHITE PAPER

Versiera



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Overview

Versiera is a web-based monitoring and management system for network-attached computer systems and equipment. Versiera allows administrators to keep a history of performance and important events for critical servers. Versiera helps verify the correct functioning of critical services and can notify operators in the event of failure. Versiera also aids in identifying system performance issues and limitations. As part of its monitoring, Versiera maintains a database of all systems and their hardware configurations helping to maintain an accurate active asset inventory.

However, Versiera also provides broad support for management of systems. Versiera can help in identifying the actual usage of hosts and servers. Versiera provides a centralized method for a variety of management tasks including: configuring and managing services on hosts, installing software and patches, and maintaining the integrity of critical system files.

Versiera has a number of properties that makes it a compelling system monitoring and management solution:

Cross-platform – Versiera can monitor a wide-range of platforms. Full support is provided for hosts running Microsoft Windows (NT, 2000, XP, 2003, Vista), Sun Solaris, Mac OS X, Linux, FreeBSD, OpenBSD and NetBSD. Agents have also been developed for embedded applications on network equipment. In addition, other equipment can be monitored via SNMP. The user interface is web-based and only requires a web browser.

Scalability. Versiera is designed to manage large installations of hosts. The system is designed to scale so that it can monitor all hosts on the network, including critical servers. Different levels of monitoring can be configured for different hosts, ensuring that important events are not lost in noise.

Security. Versiera uses strong encryption to protect all communications and to authenticate all connections between hosts and Versiera's management systems.

Extensibility. The capabilities of the Versiera platform can be expanded by end-users using both platform-specific run-time libraries and platform-independent high-level languages.

Openness. Versiera uses standard protocols for communication and standards for representing data. Versiera's database is accessible to external tools and database schema is provided with the Enterprise product.

Passive Monitoring Versiera can monitor a number of standard properties of computer systems, including processor load, memory usage, disk usage, etc. and react to changes in the system.

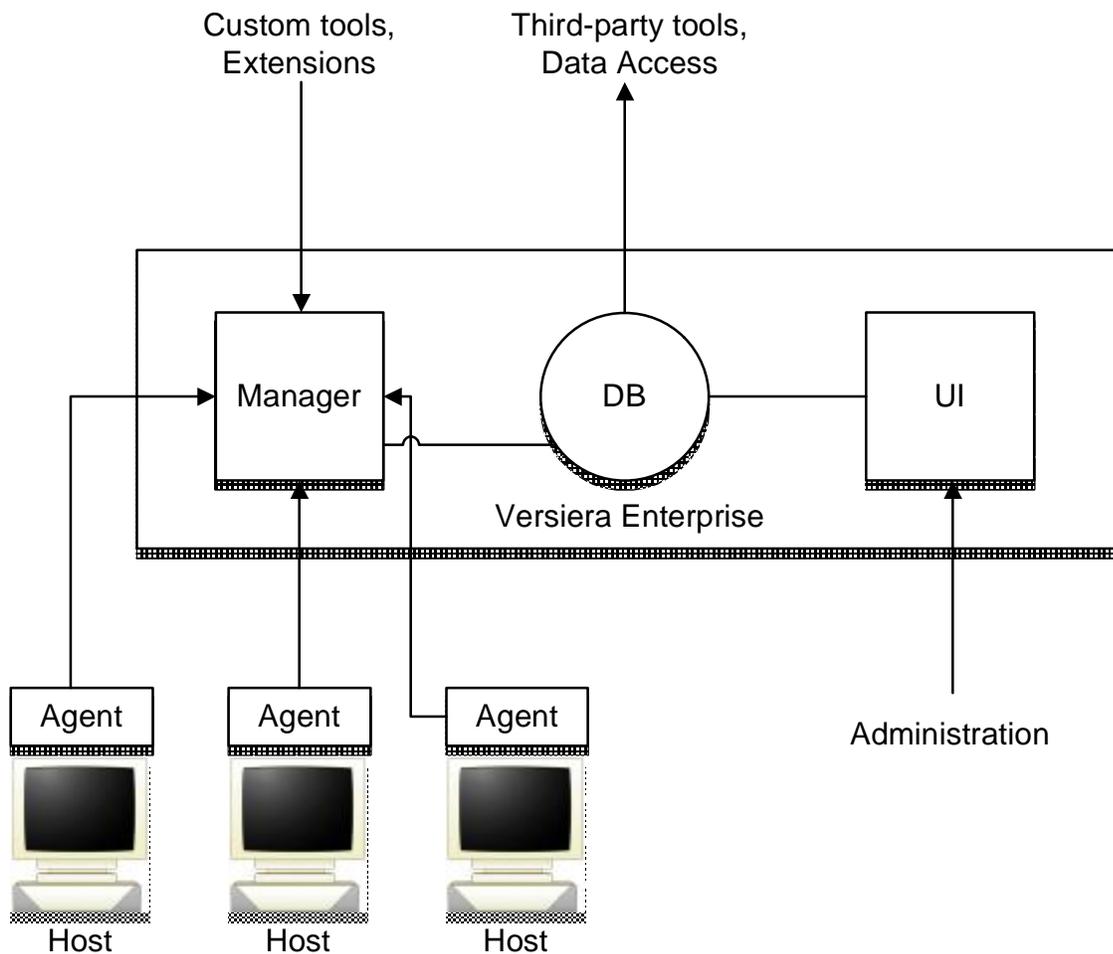
Active Monitoring Versiera can track specific events, including the execution of specific programs, or actions associated with a particular user account. Versiera can also check on the status of particular services. For example, Versiera can verify that a web server is accessible or that a DNS server is responding to queries.

Dynamic Grouping Versiera can target its services to particular hosts or groups of hosts, but can also target hosts based upon common properties – for example, hosts with the same operating system, or hosts on a common network.

Passive Control Versiera can interact with hosts directly. However, this is not always practical. Security and organization may restrict what communication may take place between a host and a server outside of its network. If necessary, hosts can be controlled passively whereby the Versiera manager need not initiate communications with the host.

Structure

Versiera's primary purpose is to remotely monitor and manage hosts connected to the network. This is accomplished via an agent that is installed on each managed host.



The Versiera agent supports a wide variety of operating systems including Microsoft Windows (NT, 2000, XP, 2003, Vista), Sun Solaris, Mac OS X, Linux, FreeBSD, OpenBSD and NetBSD. Cross-platform support does not mean that all platforms must be treated the same. Versiera provides both cross-platform abstractions for common system properties and actions, but also exposes platform-

specific interfaces (for example, direct access to the WMI system on Microsoft Windows hosts). The agent collects information from the local system and communicates with the Versiera Manager to determine what tasks it is required to perform, as well as to report on its progress in completing those tasks.

The agent is highly extensible. The manager can distribute both platform-specific modules and platform-independent scripts to agents to add new functionality and provide support for customized solutions. The manager provides an API by which external tools can interact with Versiera, to integrate monitoring and control of hosts with other software systems.

Versiera maintains a database containing the information about the hosts it is monitoring. This database is accessible via standard SQL tools to both ease integration into existing systems and to ensure that the data is always available.

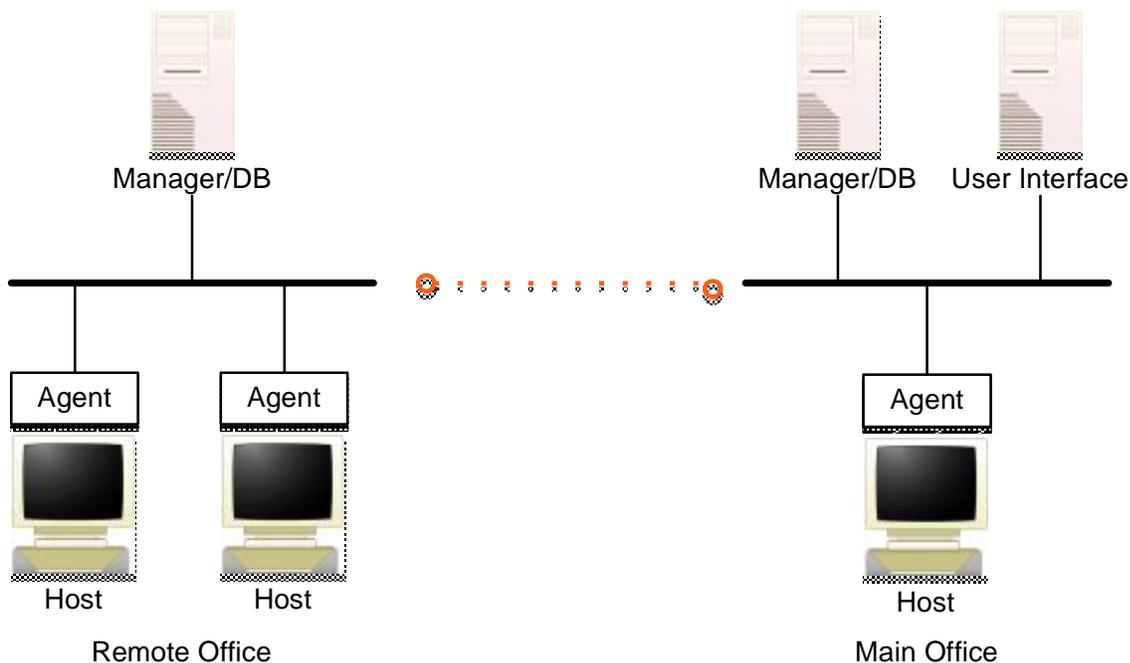
Versiera also provides a web-based user interface which takes advantage of modern web technologies to provide access to administrators. The user interface allows for varying levels of control and responsibility for different administrators. These access levels can be assigned through defined roles for simplicity but can also be specified finely to support environments where complex, precise access controls are required.

While the Versiera Agent provides the greatest power and flexibility it is not always feasible to deploy an agent on all hosts. Some platforms and equipment (for example, network switches) do not typically permit the inclusion of custom programs. Versiera provides support for monitoring these hosts and other devices via SNMP for cases where installing the agent on the host is not feasible.

Scalability

Versiera's server infrastructure is designed for scalability. It can scale up to large server installations for capacity and redundancy, ensuring that Versiera's services are always available. The infrastructure can also scale down, as far as a single server to support small and medium installations where cost is a critical consideration.

Each of Versiera's separate server pieces - the manager, the database, and the user-interface - can be scaled independently to meet the specific needs of an environment. An installation with a large number of hosts may require more managers and databases than user-interface servers. However, installations with a large number of administrators may benefit from having a larger number of user-interfaces. The server infrastructure grows to meet your needs.

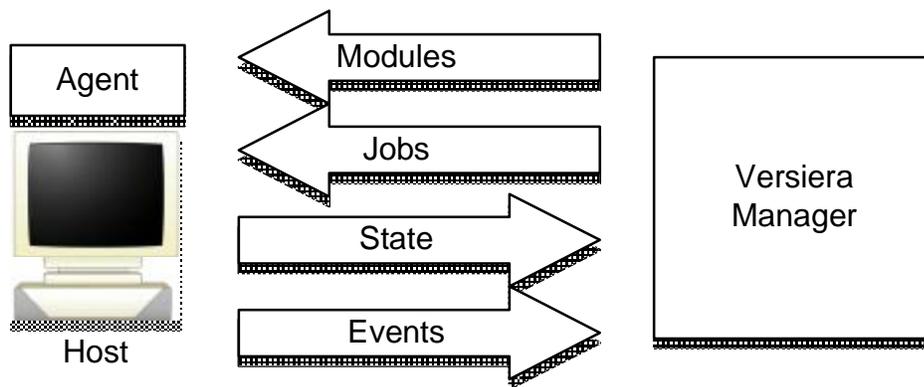


Versiera's server infrastructure can be distributed to minimize network overhead for remote offices. This distributed model still allows complete access for administrators from a single interface, but allows the manager for a set of hosts to be located in close proximity to ensure maximum

performance. Of course, Versiera also supports the centralization of its server infrastructure for installations where ease of hardware maintenance is paramount.

Agent Communication

The manager is responsible for communicating with agents. Communication between agents and the manager is all performed over HTTPS. All data is encoded in XML format to ensure broad platform support and to ensure compatibility with future systems.



The manager can provide modules to the agent to extend its functionality. These modules can provide new sources of events for the agent to monitor or new tasks that the agent will be capable of performing. Almost every facet of the agent's functionality can be expanded through modules. In addition to the collection of modules provided with the Versiera system, end-users are able to extend the agent's functionality themselves through their own custom modules. Modules may be developed either using the agent's C/C++ API or via Versiera's high-level scripting language.

The manager will assign jobs to agents as requested. The manager tracks which agents are tasked with jobs and their progress. Jobs can include any task that you wish the agent to perform, whether it is monitoring a specific service, installing a new software package, or verifying the state of critical system files. The manager is responsible for ensuring that the agent completes the given job. The timing of jobs can be controlled so that updates to the hosts can be scheduled for an appropriate time. However, timing can be relaxed so that if a host is not available at a specific hour, the job can be completed at the earliest available and satisfactory time.

As part of its normal behavior, the agent periodically transmits state documents to the manager which describe the state of standard properties of the system (e.g. processor load, memory usage, installed software). The manager is responsible for incorporating this state into the database and noting any changes in the state. Versiera can be configured to generate alerts on unexpected or

undesirable changes in state (e.g. a high processor load or installation of an undesired software package).

As requested, the agent will also forward events to the manager. For example, one of the modules provided with the main Versiera package provides the capability of tracking the network connections that a host makes. The agent can be given a job which asks it to generate events when specific network connections are made or when unexpected network connections are made. These events are stored in Versiera's database by the manager for analysis and can be us