

The eBusiness Management Center™ product uses a managing server architecture in which one or more servers are placed throughout the network. Each managing server hosts an eBusiness 1 HyperAgent™. If an organization's network spans multiple locations and those locations reside behind the same firewall, typically there would be one HyperAgent™ per location. Conversely if the organization utilizes multiple firewalls in one physical location, a typical implementation would call for one HyperAgent™ within each firewalled area. All data are automatically consolidated into a unified data store for presentation, alerting and analysis.

HyperAgent™ initialization begins with an automated network discovery. This discovery process may be scheduled to run at any predetermined interval up to once a day depending on number and size of subnets being monitored. A typical class C subnet can be scanned in under 20 minutes. The discovery is performed as follows:

- 1) IP addresses are validated using a single-packet ICMP port 7 echo request.
- 2) Valid addresses are requested to return the SNMP system object group.
- 3) Non-SNMP enabled devices are port scanned to determine device type.
- 4) All devices that are determined to be computers are further scanned for configuration, operating system and installed software.

The discovered devices are then added to the HyperAgent's configuration. The configuration may also be modified through a web-based GUI.

Once the configuration has been established, network monitoring is performed both passively and actively. Passive monitoring consists of SNMP requests to each device for traffic-related metrics that include but are not limited to:

- Octets in/out
- Errors in/out
- Packets in/out (unicast and multicast)
- Discards in/out

Active monitoring is performed by issuing a single-packet ICMP port 7 echo request to each device every second. This monitoring produces real-time response time and status information for every device which is viewable via web-enabled java applets from the managing server. These web-enabled views are also real-time in nature, **updating every second**. Single point drill-down allows users to see historical views and click on any point in time to select the data from a collection interval presented in second-by-second detail.

Network capacity planning is facilitated by requesting automated statistical analyses of captured data that include two primary report types: trends (linear or exponential) and statistical process control (SPC). By default, these analyses are produced every 24 hours. The trend data are plotted as collected data points for a predetermined period (30 days and 365 days by default) against a trend line extending for an equal period into the future, therefore providing automated forecasts of network utilization, response time and error rates. SPC is then used to determine when network parameters are "out of control" and values may be automatically scaled to evaluate a future or proposed network configuration.

In addition to aiding with capacity planning, SPC may be used to automatically set parameter thresholds by associating 2nd and 3rd standard deviations above and below metric means with warning and alarm levels. This enables the organization to automatically issue network alerts for non-binary metrics based on historical data and statistical analyses rather than static, manually set thresholds. Coupled with device status, which is a binary metric, network monitoring can be automatically initiated and maintained with little to no manual re-configuration.

Sample of Available Reports

- **By Enterprise**
 - Enterprise Report Card
 - Response Time by Department
 - Availability by Department
 - Utilization by Department
 - Network Node Down Report
 - Utilization by Location
 - Nodes Down in Department
- **By Location**
 - Location Report Card
 - Location Performance
 - Location Utilization
 - Response Time by Device
 - Nodes Down in Department
- **By Department**
 - Department Report Card
 - Department Performance
 - Department Utilization
 - Response Time by Location
 - Availability by Location
- **By Device**
 - Device Performance
 - Real-Time Response

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