Foreseer™ Management / *Building Management System Comparison*

The need for proactive management of power and environmental foundation equipment that support critical sites such as computer room operations, networking centers and telecommunications is growing at a dramatic rate. It is becoming widely accepted that the functionality offered by the traditional building management systems (BMS) do not lend themselves to providing the necessary software tools required to manage mission critical environments.

DataTrax Systems Corporation introduced the FORESEER management system during the latter part of 1996. This system was designed specifically to fill the gap between alarm notification and control currently being offered by BMS systems, and the need for automated software tools necessary to support proactive management of the critical foundation equipment. Over the past five years, many other companies have rushed into the "Site Monitoring" market. Most, including fire detection systems and proprietary systems offered by vendors of foundation equipment essentially provide the same type of capabilities as BMS systems, only on a smaller scale. The key issue relative to providing this market with a meaningful management tool is recognizing that the personnel involved with maximizing critical site uptime need something more than basic alarm notification.

This document will highlight the features or software tools that distinguish the FORESEER system from BMS systems in general.

The Company- DataTrax Systems Corporation is focused as an organization on the management of critical foundation equipment supporting IT, networking, and telecommunication operations. This focus is ingrained in the culture of the entire company. All efforts are targeted toward providing the best product, service, installation, application support, upgrades, and leading-edge technology to DataTrax customers. Although mission critical customers have a similar need for uninterrupted operations, the individual customer requirements are very site, or enterprise specific. BMS systems typically do not distinguish between critical and non-critical monitoring. The same technology is applied to both management of the temperature in an office, and management of the temperature around a critical mainframe. Because there is a great difference in importance and impact of these two disparate operations, the company should provide an operation specific solution for each application. DataTrax Systems does not supply systems to non-critical applications because the features and capabilities would exceed the requirements. BMS systems are appropriate for non-critical applications.

Connectability- Data is the key to information. Information provides knowledge, and knowledge drives action. This paradigm is vital to the operations managers' understanding and implementation of proactive procedures to avoid unplanned downtime. If a system can only monitor a simple alarm summary, then critical data is left out. If expensive sensors and transducers must be installed to acquire the data, then the cost may be prohibitive. DataTrax is committed to acquiring data through the most cost-effective means possible. Today, most vendors

of foundation equipment provide serial connections by which a wealth of data can be accessed. However, the monitoring system must support the software protocols from the equipment vendors in order to interface with the device. DataTrax has over 60 software interfaces to the most popular equipment found in data centers. If the equipment does not have the "intelligence" built in, DataTrax provides proven methods to install sensors or other components necessary to obtain critical data. While fire annunciation and BMS systems can connect to primarily dry contacts and certain analog sensors, they cannot begin to offer the connection options that are found in the mixed vendor environment that FORESEER supports.

Operator Time- This speaks to the time invested by the user in order to access meaningful information from the system. The FORESEER system is completely menu-driven and requires no file inputs or software knowledge. Reports are constructed on-line and can be automated, data can be graphed over any selected time interval from 5 years to 1 hour, graphs can be constructed with up to 10 data points, alarm messages and thresholds can be changed, on-line diagrams and floor plans can be edited, and operator notes can be written and time tagged, each in a matter of seconds. Most BMS systems offer very little if any data archiving and analysis, and even when available it requires the operator to construct specific data tables or export data to other applications manually. Both are very time consuming and often remain undone.

Data Archive and Analysis- BMS systems are purely reactionary systems and therefor limited in functionality. When an event occurs the system sets off an alarm/notification routine. This application falls far short of a proactive system designed to supply users with information about the operation of critical equipment. With easy access to the right information, site managers can fine tune or harden their sites against equipment failures.

The only way to become truly proactive is to understand the steady-state operation of the site from a historical perspective. Comparing current data to historical data will allow users to evaluate the equipment's performance and discover negative changes in values before an alarm occurs. As mentioned above, with FORESEER, interfacing and acquiring important data comes first. Next the stored data must be quickly and easily accessible to the user. The FORESEER software utilizes state-of-the-art data archiving routines that can store up to 5 years of data on-line for each data point. Automated back-up procedures are also part of the archiving process. Once stored, the data is easily retrievable by the user through a menu selection. The X axis (time interval), and Y axis (values), are also selectable and never pre-configured (most BMS systems must configure graphs for fixed time/value intervals). With FORESEER, once a user views a graph, automatic calculations of statistical parameters such as average, minimum, maximum, range and most important, trending are displayed. FORESEER will automatically calculate and display trending values such as loss of flow (GPM per day/week/month), rise in temperature (degrees F per day), or amperage increase of a critical pump (amps per day/week/month), just to name a few. Data is important to site personnel in understanding capacity availability of power system, cooling levels, seasonal temperature/humidity variations, chilled water flow trends and a host of other parameters that support proactive actions. However, if the data is difficult and time consuming to access, and the system does not offer the automated analysis tools as is the case

with BMS, the monitoring system becomes nothing more than an PC based alarm annunciation system.

Graphics- The graphical user interface offered by the FORESEER Client software serves the foremost purpose of providing the location of alarms. The software paradigm allows for accessing sites on a global, national, or local level. The easy "drill down" concept allows users to go from general views such as the city view, to the site view, to the floor plan, down to the specific equipment in alarm. In addition, equipment and floor diagrams in FORESEER are easy to edit and require very little user training. Views are constructed in a manner that best fit the customer's specific site and requirements. Libraries of equipment renderings also allow the users to see the actual graphical representations of the monitored equipment.

Alarm Management- The following table represents a comparison of the alarm management routine offered by FORESEER and BMS:

Feature	FORESEER	BMS
Alarm limits per data point	4	typically 3
Color Coded Levels	Yellow-Caution, Red Critical	Red
Operator Messages from Client	yes	yes
Operator Messages from Server	yes	no
Auto Page	user defined to over 20	limited
Pager Notification List	yes	no
Concurrent report to Auto-Ops system and NMS	yes	not concurrent
Automatic prioritization of multiple alarms	yes	no
Color change of equipment icon in alarm on the floor diagrams	yes	yes
Color change of equipment icon in acknowledged state	yes	no
Netview/VTAM Interface for alarms	yes	no
Multi-User access to host from remote PC's for alarm information	yes	some
Automated Alarm Reports logging time of occurrence, acknowledgment and return to normal	yes	some

SNMP Virtual Agent-This exclusive feature allows Simple Network Management Protocol (SNMP) traps to be sent by the FORESEER Client to a Network Management System (NMS) such as HP Openview or CA Unicenter TNG in order to provide enterprise-wide notification of critical events from all of the devices monitored by the FORESEER system. This feature extends outbound SNMP capability to devices that do not typically support SNMP communications.

This document represents the principle areas of differentiation between the FORESEER and BMS systems. The above differences are based on opinion and available information. Supporting IT, networking, and telecommunication's availability is the ultimate goal of a critical site management strategy and close scrutiny should be given not just to the system's ability to provide proactive tools but to the accessibility of these routines by the user. What is certain, is that the FORESEER system offers all of the features highlighted in this document today, with minimal effort on the part of the customer to use these tools.