




Predictive Failure Analysis gives selected components in the xSeries range the ability to warn of impending failure before the component actually fails. This enables system administrators to take a much more pro-active role in systems management and reduces downtime caused by hardware failure significantly.

IBM Currently protects more components with PFA than any other major vendor.

What is PFA?

Predictive Failure Analysis (PFA) gives key components in the IBM server xSeries range of servers the ability to monitor their own health and generate an alert up to 48 hours before failure actually occurs. This allows the system administrator to either hot-swap the component (if applicable) or schedule downtime at low-impact times for the component to be changed or refreshed.

How does it actually work?

The PFA code monitors certain subsystems within the component and if these tolerances exceed a pre-determined range an *alert* is automatically generated.

For example, in hard disks, the PFA code monitors:

- Read / write errors.
- Fly height changes. (The height of the disk head above the platter.)
- Torque amplification control. (The amount of power used to keep the drive spinning at a constant speed.)

What happens when an alert is generated?

Typically the device will only send an alert once before the failure actually occurs. Because of this, it is very important that there is monitoring software in place to receive the alert otherwise the error message will only appear on next re-boot of the machine.

IBM Director software supplied with all xSeries and Netfinity servers will receive the alert and can process it in a variety of different ways. It can forward a warning message to a remote computer, a mobile telephone or a pager. It can also be programmed to execute a command on a remote computer, for instance if it receives an alert from a failing drive it can process a batch file that will back up the valuable data onto a remote drive.

What components are protected by PFA?

IBM implements PFA on more server components than any other vendor. The xSeries components currently protected by PFA are:

- Hard Disk Drives
- Fans
- Power Supply Units
- Memory
- CPU's
- Voltage Regulator Modules
- Software*

Does it really work?

IBM is extremely confident of the PFA technology used in the xSeries range. If a hardware component generates an alert within the warranty period of the component they will exchange the component on the basis of that alert rather than waiting for the failure to actually occur.

**Under Microsoft NT /2000 Clusters only.*