

IBM's Support Infrastructure

IBM's service organisation is committed to providing outstanding operational availability of your information systems. IBM service offers the advantage of experienced, professional support and provides the highest level of quality in the industry.

An automated, real-time dispatch system puts you in touch with highly-qualified technical support specialists, systems services representatives (SSRs), IBM parts locations, and management support needed to successfully resolve your problem. When you call IBM's convenient toll-free number 131426, you activate a network of support that assumes responsibility of your problem. IBM maintenance services support the performance of your systems:

- Highly-skilled service force
- Prompt, efficient problem diagnosis and technical support
- Remote support capability unparalleled in the industry
- State-of-the-art tools at the SSR's fingertips
- Predictive, preventive maintenance (proactive service)
- ISO 9000 certified service organisation

The next section detail s the following aspects of IBM's approach, processes and supporting systems for service delivery:

- Remedial (break-fix) Maintenance
- Preventative Maintenance
- Responsiveness
- Problem Determination
- Remote Technical Support
- Call Placement and Management
- Escalation Procedures
- Maintenance Records
- Engineering Changes
- Behind the Scenes Support
- Service Levels
- IBM's Spare Parts Policy

Remedial (break-fix) Maintenance

Remedial maintenance is frequently the first thing which comes to mind when maintenance cover is sought. IBM servicing philosophy is designed to "Get the System Going First", and this is accomplished by our practice of progressively replacing Field Replaceable Units (FRUs).

The increased density of packaging of modern computer systems has led to the development of a FRU replacement philosophy which greatly reduces system downtime. Nowadays major "logical" areas of equipment may be incorporated in relatively few components. When a failure occurs, diagnostic programs (many of these in IBM processors are automatic) and error analysis flowcharts will indicate the likely logical areas of failure.

When an error condition occurs, inbuilt diagnostic programs and error analysis flowcharts will indicate the likely logical areas of failure. In a large processor complex, procedures are initiated for a Problem Management Record, a specialist to analyse the PMR (problem Management Record) and SSR to be paged with details of the error. Rather than one-by-one replacing parts, and in order to

impact the customer's system for as short a time as possible, several FRUs may be replaced initially to expedite recovery.

The majority of malfunctions are repaired by the replacement of FRUs isolated by analysis routines based on information from the original error. In those instances when initial FRU replacement is unsuccessful, the IBM Echelon Support Structure is invoked and may necessitate the raising of an "Alert" record to inform IBM management of potential serious impact to customer operations.

Preventative Maintenance

Many IBM machines have schedules for Preventative Maintenance tasks designed to prevent faults. Product Support Services personnel around the world, and technical staff in the equipment's plants of origin, review preventative maintenance programs throughout the product's life to help to achieve outstanding performance.

The Account SSR maintains records of all Preventative Maintenance activity. Preventative Maintenance is always performed at customer convenience, and generally with no impact to the customer's operations.

IBM will undertake a schedule of Preventative Maintenance tasks as defined by the manufacturer. This 'pro-active' maintenance includes actions such as filter cleaning, lubrication, mechanical adjustment, error log analysis, etc.

The purpose of the IBM preventative maintenance program is to help to provide outstanding availability of customer equipment by acting to resolve potential problems before they cause an interruption to service. This is beneficial to both the customer in terms of system availability and also to IBM in terms of our ability to provide an efficient cost effective service. In the course of normal service activity, IBM engineers have a policy of ensuring that there are no impending faults or issues that may cause subsequent outages. Whilst this does not constitute Preventative Maintenance, IBM sees this as a proactive maintenance activity that reduces equipment down time.

Responsiveness

Our computerised Communications Centre, manned 24 hours per day by IBM personnel (no message-passing services or answering machines) will help to ensure that the right engineer is despatched to answer a fault reported by the customer at any time of day or night. An IBM representative will provide telephone response within 30 minutes, and respond on site within the response time agreed in the maintenance contract.

From the time a fault call is first placed by the customer, IBM has systems in place to measure our response to that call. The online system which IBM uses to manage the dispatch of service calls will allow a certain amount of time before the call must be despatched to a SSR, another measure on the allowable time for the call to be acknowledged, and further checks on time of completion.

Another online system - Alert - is used to notify management and higher levels of technical expertise when a problem is not fixed quickly. The engineer contacts the Communications Centre (staffed 24 hours per day) to open an Alert record. This record is automatically passed on to the correct management and technical leaders based on the nature of the fault, work performed so far, next action planned, and support levels already engaged.

Alerts are updated at predetermined, regular intervals until resolution of the problem. At this time the Branch Specialist will review the Alert, confirming procedures have been followed, resources were engaged correctly, and worldwide technical management systems have been updated.

Problem Determination

IBM believes no other company can provide the assistance with problem determination available to our SSRs, through our technical support databases. These databases provide details of hardware and software fixes which have been identified from all over the world. IBM’s technical support databases are updated many thousands of times a day by the people who manufacture the equipment, and the field teams who fix the problems.

Remote Technical Support

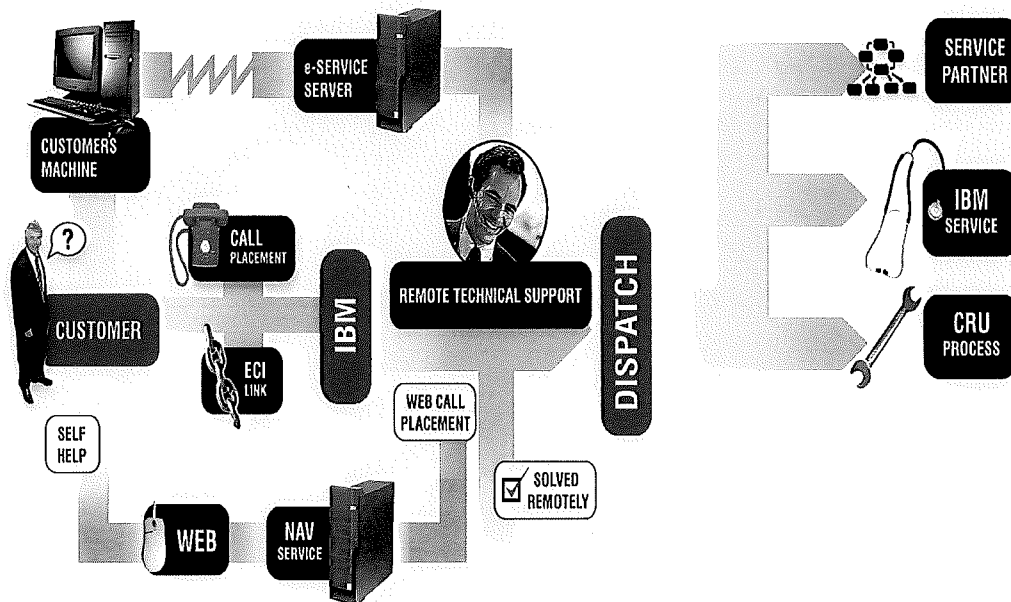
Most problem determination is performed remotely through either the “Smart Centre” for mobile and desktop PCs or the Remote Technical Support Team for the remaining IBM and selected non-IBM equipment. These teams and the infrastructure behind them (KBS and level II, III support etc.) enable faster problem determination and therefore reduced restoration times to our Customers. IBM’s Remote Service Delivery model today results in a better service experience for Customers and consists of and is due to:

- Multiple call entry points including phone and electronic submissions.
- Significantly improved problem resolution times.
- Problem determination begins much earlier in the call cycle.
- Wider access to a more highly skilled set of technical resources.

Some problems can also be solved efficiently through the use of customer replaceable units (CRU).

Figure 1: Remote technical support overview

Call Placement and Management



IBM has available a Communications Centre operates 24 hours a day, 365 days a year to provide uninterrupted communications between our customers and our engineers.

IBM provides several methods for call placement including

- By telephone: one national telephone number to connect to IBM's central Helpdesk for call logging and call screening facilities. IBM's help desk has an average answer speed of less than 30 seconds, with 90 per cent of all calls answered within 90 seconds.
- Via the internet using IBM's real time web portal also giving real time updates on service request status or
- Via an electronic link between the client's problem management system and IBM's

Through these systems all elements of a service call can created viewed or updated; for example;

- Add additional comments to an existing Service Request
- Enquire about the progress
- Escalate a request
- Change the severity level

Escalation Procedures

IBM has a well documented and automated escalation process for both technical and management issues. These processes help to ensure that the right people are informed, the right resources are made available, and appropriate action is being taken.

They will help to ensure that our client is aware of the nature and status of any escalated situation.

Using IBM's escalation procedure is mandatory for IBM employees.

Escalation procedures can be invoked over a variety of situations including:

- Impact to client's business
- Product performance
- Pro-active assessment that service level achievement is at risk
- Client or IBM concern over any aspect of the service.

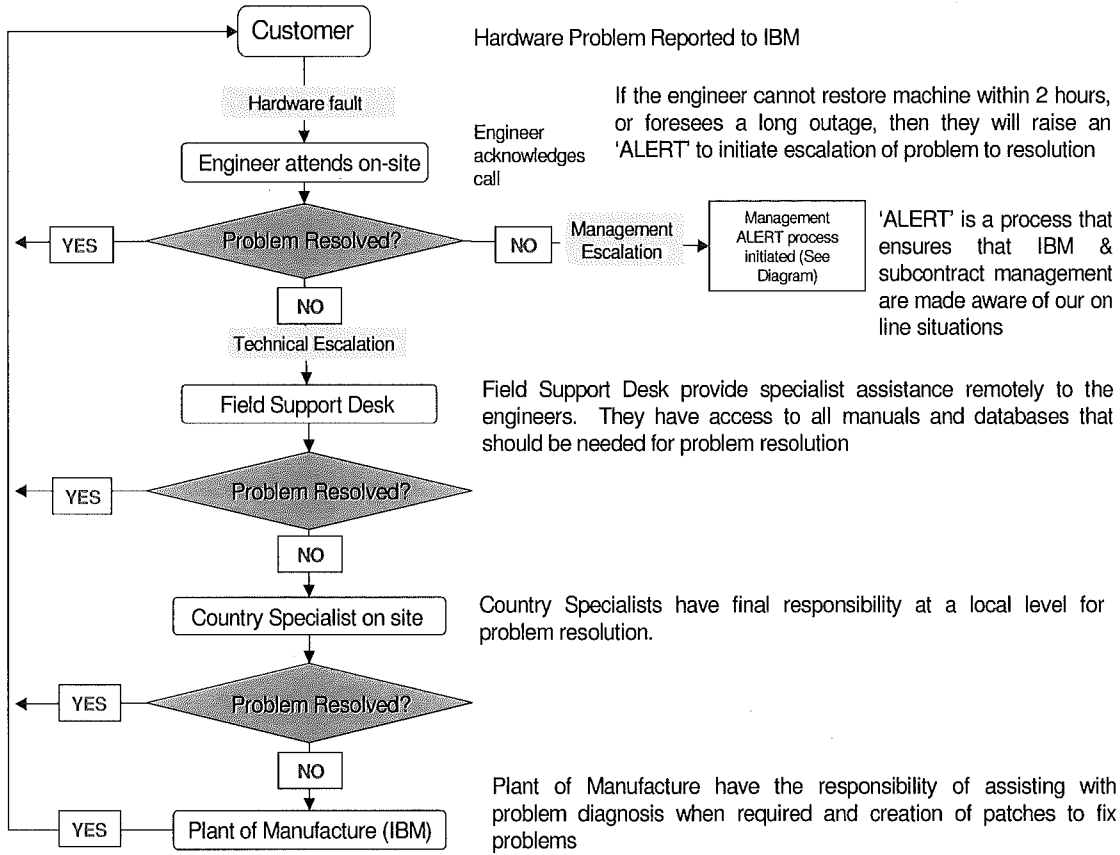
The technical escalation procedure extends all the way to the equipment plant of manufacture or to the Original Equipment Manufacturer.

The management escalation path extends past IBM's General Manager in Australia & New Zealand to IBM's Global CEO in New York when IBM's special Critical Situation management process is invoked.

Customers will be able to take an active role in designing the escalation procedure. This will help to ensure that the processes used will accurately match the client's business needs.

The IBM internal **Management** and **Technical** escalation procedure flow chart is shown below:

(1) IBM Internal Technical Escalation Procedure



(2) IBM and customer management escalation procedure flow chart

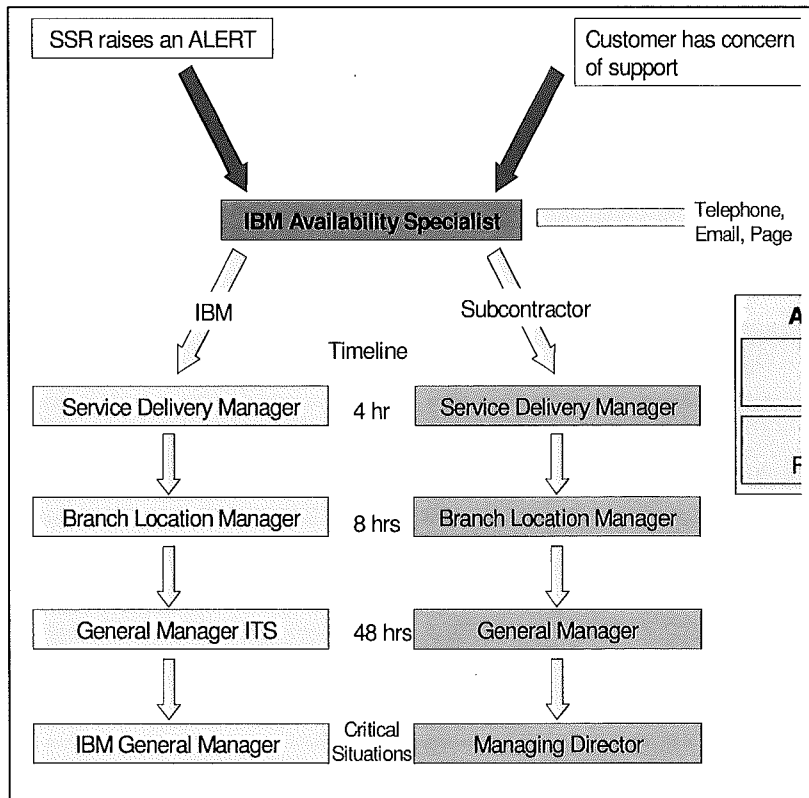
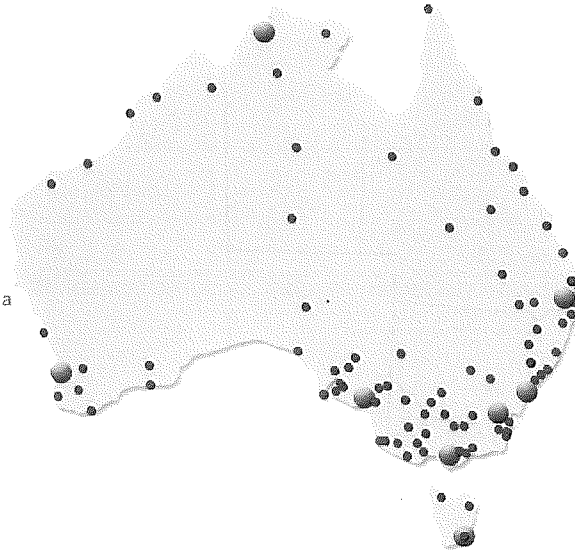


Chart: IBM's coverage in addition to Capital Cities

Coverage

Queensland	New South Wales	Western Australia
Roma	Ballina	Albany
Bundaberg	Lismore	Bunbury
Emerald	Broken Hill	Esperence
Mackay	Dubbo	Kalgoorlie
Mt Isa	Port Macquarie	Geraldton
Bowen	Taree	Karratha
Cairns	Gosford	Broome
Gold Coast	Wagga	Cannington
Goondiwindi	Griffith	Carnarvon
Longreach	Albury	Derby
Nambour	Bega	Exmouth
Rockhampton	Deniliquin	Meredin
Sunshine Coast	Glen Innes	Narrogin
Thursday Island	Griffith	Port Headland
Toowoomba	Mermula	
Townsville	Moruya	South Australia
Victoria	Singleton	Pt Augusta
Mildura	Newcastle	Whyalla
Swan Hill	Orange	Pt Lincoln
Horsham	Parkes	Mt Gambier
Ballarat	Tamworth	Balakalva
Bendigo		Ceduna
Geelong	Northern Territory	Coober Pedy
Hamilton	Katherine	Maitland
Moe	Tennant Creek	Mt Gambier
Morwell	Alice Springs	Murray Bridge
Pakenham Upper		Port Pirie
Sale	Tasmania	Renmark
Shepparton	Hobart	Waikerie
Wangaratta	Launceston	Woomera
Warrnambool	Devonport	
	St Helens	



Maintenance Records

The Account SSR assigned to NSW Businesslink will maintain a set of books, called the Service Management Package, covering all aspects of the customer's system. These records include Operations, Engineering Change Control, Preventative Maintenance Control, and Activity Logs for each individual machine, and for the system as a whole. Customer staff have access to these books at any time.

Engineering Changes

IBM will also provide automatic shipment and installation of Engineering Changes (ECs) for IBM equipment, free of charge. EC's which normally address safety, performance enhancement and maintenance reduction aspects are designed to maintain IBM equipment at the same production level as newly-manufactured machines, thus protecting the customer's investment.

Behind the Scenes Support

IBM's field Systems Service Representatives are trained to quickly resolve a large proportion of customer-reported problems. In the event of extended outages, repeat calls, intermittent problems or situations of high customer impact, IBM has great depth in its support structure including:

- Branch Specialists - highly trained and experienced on a wide range of products - are available in every branch office to provide physical assistance to SSRs in the field.
- Product Specialist - A small cell of engineers with in-depth knowledge of a particular product. Generally reside at IBM Australia's Technical Services Group (TSG) based in Sydney.

- Country Specialist - One senior engineer in each country has final responsibility for problems on each specific product. The Product and Country Specialists at TSG will generally have more than 20 years experience in the industry, and are the highest echelon of support in Australia. They are the interface to:
- Plant Engineering team - in plant of manufacture
- Design Team

Problems encountered on IBM machines can be escalated virtually to their 'inventors' in a very short time.

Service Levels

IBM has a range of service levels which may be tailored by our customers and IBM. The Coverage hours also vary- dependant on the nature of the client's business.

Service levels include response times and escalation criteria. They reflect the severity of the request.

Because different infrastructure resources are required to meet different coverage hours and service levels, IBM has built these into separate purchasable options. A less "urgent" response time, would be a less expensive service deliver. This is because more detailed resource planning and management is possible.

Service requests are assigned a severity by the customer. This is typically based on the definition below. These severities reflect business impact and in turn prescribe the processes and the service levels adhered to for that service request.

All of IBM's service levels severity definitions and response times can be customised according to unique business requirements.

TABLE Coverage Hours and Time Frames

Days Per Week	5	7
Hours Per Day	11hrs (7:00 am – 6:00pm)	24 hrs

TABLE Service Levels by Severity

Item	Severity 1	Severity 2	Severity 3
Typical Definition	System unavailable high impact to the business	Some system impact: running degraded	Minor or no impact
Example	CPU or major application unavailable	Some storage off line	Redundant component failure
Telephone Response Time Target in Minutes- measured from call placement	15 minutes for severity 1	30 minutes for all other requests	Customised By request
Repair Time Target	2 hours from onsite	2 hours from onsite	4 hours from onsite

IBM's Spare Parts Policy

IBM has access to all required spare parts for the inventory. IBM systems track the configurations and revision levels of installed systems to ensure that the right inventories are kept.

Vitality Requirements for parts

IBM defines parts by "vitality". This rating system is based upon how essential a part is for machine performance. For example vitality 1 parts would represent a single point of failure such as a "mother board". A vitality 2 part would be less essential, for example a machine frame

IBM's parts policy is to have all vitality 1 parts available in each State that the equipment exists.

In addition to Vitality, stocking levels for IBM Parts are determined by IBM's geographic coverage criteria. Namely;

- Equipment Vitality requirements (see below) IBM's parts policy is to have all vitality 1 parts available in each State that the equipment exists.
- Install base of hardware under maintenance
- Expected call rates and service requirements
- Skill Level required to service client's equipment
- Customer service level requirements
- Travel times
- Unique considerations for Client (for example the requirement to have on site parts for critical or self service equipment)



Annexure C: IBM Hardware Support Guide

Version 1.4

**IBM Maintenance & Technical Support
Australia and New Zealand**

Created by: Bob Jackson



TABLE OF CONTENTS

- 1. CALL LOGGING & UPDATES 3**
 - 1.1. Prior to logging a service call..... 3
 - 1.2. Electronic Call Logging..... 3
 - 1.3. Call Logging over the phone..... 3
 - 1.4. Call Severity 4
 - 1.5. Requesting an update over the phone..... 4
 - 1.6. Call logging and Updates over the Web 4
 - 1.7. System Firmware Management..... 4

- 2. SERVICE DELIVERY METHODS 5**
 - 2.1. Remote Problem Determination 5
 - 2.2. Remote Fix..... 5
 - 2.3. Customer Replaceable Unit (CRU)..... **Error! Bookmark not defined.**
 - 2.4. Depot Repair..... **Error! Bookmark not defined.**
 - 2.5. Onsite Repair 5
 - 2.6. Target Response Time - Onsite 5

- 3. ESCALATION PROCEDURE 5**
 - 3.1. Management Escalation Procedure..... 5
 - 3.2. IBM Technical Escalation 6
 - 3.3. Contact Information..... 6



1. Call Logging & Updates

1.1. Prior to logging a service call

If you believe you require IBM to perform warranty service on your IBM product, the IBM Service Technicians will be able to assist you more efficiently if you prepare before you call. Please have your machine type and serial number ready when you call.

On the IBM Systems and Support web site <http://www-304.ibm.com/jct01004c/systems/support/> you will find the latest downloads, IBM Server Proven Compatibility Information and troubleshooting guides for all IBM products.

For System x products should you still you still require a service call to be raised, having machine data such as DSA, RSA, BMC and POST logs ready as well as a description of the symptoms, any steps taken to try and resolve the problem and any recent changes in either hardware or software will help resolve your problem as quickly and efficiently as possible.

1.2. Electronic Call Logging

Electronic Service Agent (ESA) is a "no-charge" software tool that resides on the customer's server(s). ESA provides an automatic hardware problem reporting function that predicts and prevents hardware errors by early detection of potential problems, downloading fixes, and automatically submitting problems to IBM when appropriate. Supplemental system service information is sent and made available to IBM support centres to aid in problem resolution.

When a Service Agent reported problem arrives at the IBM Support Centre, our team can proactively respond by combining the service information and IBM resources to prepare action plans effectively for the Customer.

1.3. Call Logging over the phone

Phone IBM Remote Support Centre 24x7 on 131 426 & select the appropriate option:

- Option 0: Privacy message
- Option 1: For post sales support on Think branded products & related accessories, including Thinkcentre & Thinkpad products.
- Option 2: For post sales support on System x Servers, FastT, DS3000 & DS4000 range of products.
- Option 3: For all other hardware related
- Option 4: For Business Recovery Services
- Option 5: For all other software related calls
- Option 7: For all other enquiries
- Option 8: To repeat options

The steps below are a general guide to how a call will flow when being entered into the system:

- Step 1** Provide consultant with your Customer number if you have one.
- Step 2** Consultant will verify company's name and ask for the machine location details
- Step 3** Consultant will ask for the faulty equipment details
 - If IBM, machine type (4 digits) and serial number (7 characters)
 - If Non IBM, machine brand and model, serial number
- Step 4** Consultant will ask for contact name and phone numbers
- Step 5** Consultant will ask for a brief fault description
- Step 6** Consultant will ask for the call severity.
- Step 7** Consultant will now complete the call. You will be advised of the IBM Service Call Reference Number. Please record this number for future reference.



1.4. Call Severity

Severity 1 Machine down, high impact on business operations, or urgent attention required as specified by the Customer or their nominated supplier.

Severity 2 Machine down/degraded, limited impact on business operations.

Severity 3 Machine down/degraded/operational, minimal impact on business operations.

Call severity is an indication of the impact of the problem on your business. The actual hours of coverage and response time applied to your Service Call will correspond to the Service Levels purchased as part of the machines standard Warranty or to uplifted Service Levels purchased in the form of a ServicePac (SPAC) or Maintenance Agreement.

1.5. Requesting an update over the phone

Phone IBM Call Centre on 131426 & select the appropriate option for your enquiry.

Step 1 IBM consultant will ask for the IBM call reference number.

Step 2 IBM consultant will provide you with an update and/or initiate additional actions if required.

1.6. Call logging and Updates over the Web

After registering for an ESC+ (Electronic Service Call) login, you may log calls on the web at the following URL. <http://www.ibm.com/support/au/> and follow the links 'open a service request'.

Calls logged over the web can be viewed at anytime for 'real-time' status updates.

In addition, calls can be viewed by location and historical reports are available for call logged via the web. Your client representative can assist in getting you registered.

1.7. System Firmware Management

Enterprise servers have become increasingly reliable over time. Once installed, server hardware configurations are relatively stable and do not normally change significantly over the course of their lifetimes. The software that runs on the servers, however, is continuously changing, with users adding new applications and data on a daily basis. As a result, the operating systems and applications that run on the servers require regular updates, such as security patches and version upgrades, to keep computing environments running smoothly and to avoid unscheduled outages.

Firmware, too, must be updated periodically. As the lowest level of software, firmware directly affects the behavior of the hardware. It may be surprising to know that many of the hardware issues identified in the field can be fixed by the timely application of firmware updates. Updating your server components to an appropriate level of firmware is critical to the good health of your computing environment and can help you ensure that your hardware continues to function at peak performance levels.

Best Practices include managing change and scheduling routine maintenance and are critically important to the overall reliability, availability, and performance of your system. More importantly it can also help you avoid those unscheduled outages and lost productivity.

Automatic notification of new releases can be sent via email by subscribing for this service through the My Support tool at www.ibm.com/support/mysupport/us/en/

Note: Given the complex nature of the equipment and technology this is not intended to be a definitive list and some problems may require additional steps to identify or rectify a fault.



2. Service Delivery Methods

2.1. Remote Problem Determination

Not all service calls will result in an onsite service engagement. Some calls are able to be resolved through performance of problem determination remotely over the phone. You are requested to work with IBM during problem determination and to perform those activities that IBM may request. The aim of remote problem determination is to identify whether the problem resides with your IBM machine, with other machines or with software and configuration. This maximises the opportunity for a first time fix if a hardware service call is necessary.

Depending on the machine and the fault, the Remote Technical Support team may require machine logs to be sent to assist with problem determination. Having logs ready to be sent prior to logging a service call with IBM will assist in the service call process running as efficiently as possible. Additionally if there are on-board diagnostics available these should be run where a hardware fault is suspected prior to logging a call.

2.2. Remote Fix

Some problems are able to be resolved over the telephone or with the application of machine code and/or code updates. The Remote Support Technician will be able to advise how machine code levels, drivers and other software are maintained and updated specific to your machine. For some machines it is also possible to be notified automatically when new code is released so that you can plan updates that fit in with your maintenance schedule.

2.3. Onsite Repair

If, after remote problem determination has been completed, your machine requires service by one of our onsite technicians, the Remote Support Technician will have determined the most likely fault and if necessary the parts required. The Remote Support Technician will prepare an Action Plan to be sent to the onsite technician electronically including parts delivery information, diagnostics completed, suggested actions and timings and will provide the client with an expectation of what will happen next.

2.4. Target Response Time - Onsite

If your machine is to be serviced onsite, a service technician will be scheduled to arrive at your location within the target response time eg 2 or 4 business hours or the next business day (depending on service purchased). This time starts **after** remote problem determination has been completed over the phone by IBM's Remote Technical Support.

3. Escalation Procedure

The IBM Escalation Procedures are designed to ensure the timely involvement of technical & management support when a machine, program product or application maintained by IBM is not fully available to a Client.

3.1. Management Escalation Procedure

If you require a service call escalated the Remote Technical Support team who handles your call or the National Call Centre consultants (131 426) can contact the necessary Service Delivery Manager or Duty Support Manager whether it be during business hours or after hours.

The Manager will assess the situation and take necessary action to ensure impact is minimised.



3.2. IBM Technical Escalation

IBM Technicians will escalate unresolved calls via a formal escalation process. This process contains instructions for Technicians to follow which include specific timings on when to escalate. This process is also used within the Remote Support Teams

To escalate a call the onsite technician will contact the respective RTS team who will involve the next level of support if required. Escalation can continue through the Country Support to the Plant of Engineering and development.

3.3. Contact Information

Escalation Matrix for Severity 1 Calls		
Time of Day	IBM Management Contact (in order)	Contact Method
Business Hours (08:30-17:00)	1. Delivery Project Manager Harry Drakakis	Mob: 0419 257 217 Ph: 02 9461 3367
	2. Maintenance Account Rep Bob Jackson	Mob: 0408 554 248
	3. Client Exec Bridget Luke	Mob: 0410 349 680
After Hours including weekends and public holidays	DSM (Duty Services Manager) The DSM is responsible for managing situations after hours	ph 131 426 Asked to have the DSM paged to contact you

Note: - all IBM staff can be contacted via the Switch on 132 426