

REVISION HISTORY

DATE	AMENDMENT	DESCRIPTION OF AMENDMENT

SCHEDULE 6 – FAULT MANAGEMENT

1 FAULT MANAGEMENT

The fault management process adopted by both parties shall ensure the prompt restoration of agreed quality of service.

2 FAULT CLASSIFICATION

2.1 Faults (**Faults**) arising in segments of a Network will be defined and classified as follows:

(a) **Carrier System Fault**

A Fault resulting in the total loss of ability by either party to transmit Calls between the two Networks due to transmission faults on the 2.048 Mbit/s Interconnect Links or an entire Network.

(b) **Network Fault**

A Fault located within the Batelco Network (**Batelco Network Fault**) or within the Licensed Operator Network (**Licensed Operator Network Fault**). Network Faults include Faults within the signalling networks.

2.2 Faults will be addressed depending on individual circumstances, with Service Affecting Faults having a higher priority:

(a) **Service Affecting (SA)**

Faults that result in a noticeable deterioration in the quality of service:

- (i) Carrier System Faults for which the Fault reporting party can demonstrate a total loss of ability by either party to transmit calls between Networks due to transmission faults within the Network; or
- (ii) Network Faults for which there is a Critical Link Failure or Major Link Failure or Route Failure and for which the Fault reporting party can demonstrate:

- (A) severely restricted ability by either party to convey Calls between the two Networks ;
- (B) total loss of, or severely restricted access to one or more of the number ranges which reside on either party's Network ;
- (C) total loss of, or severely restricted access to one or more of the number ranges which reside on a Third Party Telecom Provider's Network, where the Calls are transited via either party's Network; or
- (D) a loss of service deemed as 'business critical' by either party.

(b) Non Service Affecting (NSA)

A Fault which is not Service Affecting.

2.3 Critical Link Failure, Major Link Failure, Minor Link Failure, Critical Route Failure, Major Route Failure and Minor Route Failure are defined as follows:

Fault type	Classification
Critical Link Failure	<i>75% or more of total signalling capacity is unavailable</i>
Major Link Failure	<i>50% to < 75% of total signalling capacity is unavailable</i>
Minor Link Failure	<i>25% to < 50% of total signalling capacity is unavailable</i>
Critical Route Failure	<i>50% or more of total capacity of the route is unavailable to carry traffic.</i>
Major Route Failure	<i>25% to < 50% of total capacity of the route is unavailable to carry traffic</i>
Minor Route Failure	<i>Less than 25% of total capacity of the route is unavailable to carry traffic</i>

3 FAULT CONTROL CENTRES AND FAULT ASSIGNMENT

3.1 Each party is required to provide a Fault Control Centre (**FCC**) for Fault reporting and Fault management. Each party's FCC must operate 24-hours per day, 7 days per

week and all days in each year. Each party's FCC must have a specified contact number which a party must provide in writing to the other party.

- 3.2 Either party can report a Fault. Each FCC must maintain a unique set of FCC Log Numbers. When one party FCC reports a Fault to the other, the FCCs will exchange FCC Log Numbers.
- 3.3 Both parties FCCs will exchange sufficient information to allow for efficient Fault resolution of all affected Services. A standard Fault Management Form will be used by both FCCs to report and receive Faults. (Appendix 1)
- 3.4 Each reported Fault will be investigated by the reporting party to ensure that the Fault exists and the reporting party will attempt to establish the location of the Fault.
- 3.5 Once the Fault is reported, the parties will decide who will take responsibility for the Fault. The party who takes responsibility for the Fault shall be called the **Fault Owner** and the other party shall be called the **Other Affected party**. Where no agreement over ownership can be reached, the Fault Owner will be the party who was informed of the Fault.
- 3.6 **Internally Detected Faults** are Faults that a party believes to exist within its own network. Once detected, the party will inform the other party about any related Service Affecting Faults. This also applies to known Service Affecting Faults in a connected Third Party Telecom Provider's Network.

4 FAULT RESTORATION

- 4.1 If, during Fault restoration, it is established that the Fault is in the Network of the Other Affected party, then the roles will be reversed, i.e. the Fault Owner will become the Other Affected party and vice versa.
- 4.2 A Fault is classified as cleared when the Fault Owner informs the Other Affected party that the Fault has been rectified and the Other Affected party has verified this.
- 4.3 The **Response Time** is the period in which:
 - (a) the parties agree ownership of the Fault i.e. the Fault Owner and Other Affected party are determined;

- (b) Fault priority is determined; whether the Fault is Service Affecting or Non Service Affecting. If there is no agreement, then by default the Fault is classified as Service Affecting; and
- (c) the Fault Owner determines the expected Restoration Time.

4.4 The Restoration Time is the period in which:

- (a) the Fault Owner clears the Fault; and
- (b) the Fault Owner informs the Other Affected party of progress and when the Fault is cleared.

4.5 The **Verification Time** is the period in which the Other Affected party reports their acceptance or rejection of the Fault clearance to the Fault Owner.

4.6 Disrupted services may be restored promptly on a temporary basis, to be followed by permanent fault resolution at a later date. This form of restoration shall only be used when the temporary restoration costs are considered by the Fault Owner to be reasonable.

4.7 The FCCs will manage information relating to all outstanding Faults, including status data. This information will be made available to either party at agreed intervals or as required.

4.8 Both parties' field staff may liaise directly to resolve a current Fault as deemed necessary. However, all information must be communicated to the respective FCCs to ensure the maintenance of Fault records and the taking of appropriate action.

5 RE-CLASSIFICATIONS, SUSPENSIONS AND ESCALATION

5.1 At any time during the resolution of a Fault, the Other Affected party may, with sufficient documented justification, request the change in status of the Fault from NSA to SA at which point the Restoration Time will need to be reviewed. Similarly, the Fault Owner may also request a change in status of a Fault from SA to NSA with the required documented justification.

- 5.2 If for any reason the resolution of a Fault is impeded, due to the Other Affected party, the Fault Owner may, with proper documented justification, suspend the measurement of the Restoration Time.
- 5.3 Fault escalation can be instigated when:
- (a) the Other Affected party is concerned about the speed of restoration; or
 - (b) the Fault Owner has insufficient co-operation from the Other Affected party.
- 5.4 Initiation of the escalation process shall be done through the parties' FCCs. The FCCs will be responsible for co-ordinating the entire escalation process and maintaining the escalation records.
- 5.5 Initiation of the escalation process is done by phone, fax or other agreed media. Documented records must be kept of the entire process.
- 5.6 Every effort shall be made by both parties to reach agreement at each escalation level before proceeding to the next level.
- 5.7 The parties can agree on set escalation deadlines for specific circumstances.

6 PLANNED AND EMERGENCY MAINTENANCE

- 6.1 Planned maintenance encompasses:
- work that affects, or has the potential to affect the Network or its underlying 2.048 Mbit/s Interconnect Links or their quality of service;
 - work that affects, or has the potential to affect the quality of service provided to End Users; or
 - work that affects, or has the potential to affect the quality of service provided by the other party's Network.
- 6.2 The party planning to carry out planned maintenance activity (**Maintenance party**) should provide at least ten Working Days notice to the other party.

- 6.3 If the other party determines that the planned maintenance has the potential to adversely affect its services, then it should contact the Maintenance party within 5 Working Days of the first notice.
- 6.4 Both parties must be in possession of the final schedule at least three Working Days before the commencement of planned maintenance. If an agreement cannot be reached within this time frame, then the escalation procedure (as described above) should be followed.
- 6.5 Emergency maintenance is a type of maintenance work that needs to be carried out immediately due to the impact or potential impact to services. If this work affects, or has the potential to affect the other party's services, then, as much advance notice will be given as the situation permits.

7 DEFINITIONS

Batelco Network Fault has the meaning given in paragraph 2.1.

Critical Link Failure has the meaning given in paragraph 2.3.

Critical Route Failure has the meaning given in paragraph 2.3.

Fault means a fault defined and classified in paragraph 2.1.

Fault Control Centre (FCC) has the meaning given in paragraph 3.1.

Fault Owner has the meaning given in paragraph 3.5.

Interconnect Link has the meaning given to it in the Joint Working Manual.

Licensed Operator Network Fault has the meaning given in paragraph 2.1.

Maintenance party has the meaning given in paragraph 6.2.

Major Link Failure has the meaning given in paragraph 2.3.

Major Route Failure has the meaning given in paragraph 2.3.

Minor Link Failure has the meaning given in paragraph 2.3.

Minor Route Failure has the meaning given in paragraph 2.3.

Non Service Affecting has the meaning given in paragraph 2.2.

Other Affected party has the meaning given in paragraph 3.5.

Restoration Time has the meaning given in paragraph 4.4.

Service Affecting has the meaning given in paragraph 2.2.

Third Party Telecom Provider's Network means a Network other than a Network operated by Batelco or the Licensed Operator.

Verification Time has the meaning given in paragraph 4.5.

Appendix 1. Fault management form

Both parties shall maintain a log of the information relating to all reported Faults. This information shall be made available to either party at agreed intervals or as required.

SECTION I - FAULT REPORT

ITEMS	DETAILS
Batelco Fault log no.	
Licensed Operator Fault Log #	
Fault report date	
Time detected	
Person detected	
Time Reported	
Person Reporting	
Fault owner	
Other Affected party	

SECTION II - FAULT IMPACT

ITEMS	DETAILS
Fault Type (Network)	
Fault Status (SA/NSA) Critical/Major/Minor Link/Route	
Service Affected	
System Carrying Service	

SECTION III – FAULT RESTORATION

ITEMS	DETAILS
Cause of Fault	
Clearance date + time	
Person Clearing	
Person receiving clearance	
Confirmation time	
Person requesting confirmation	
Response time	
Restoration time	
Verification time	

Licensed Operator escalation list			
Date	Name	Position	Response