

*Service Management Delivery Services*

**OSS Expansion Project**

**ZTE Integration**

**Technical Documentation**

**Prepared for:**

****

**V1.0**

**Final**

Commercial in Confidence

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Version History

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|  |  |  |  |
|  |  |  |  |

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# Introduction

## Document Objective

This document is intended to describe all configurations required to integrate ZTE events into Mobilink Tivoli OSS System.

# Events Retrieval

## Probe Installation and Properties

The integration with the ZTE EMS is being done by Netcool/OMNIbus Probe for ZTE NetNumen WCDMA (CORBA) Version 3.0.

**ZTE EMS Details**

| **EMS Name** | NetNumen M31 |
| --- | --- |
| **Veersion** | V12.10.032fP003 |
| **IP Address** | 10.231.20.10 |
| **FTP user/password** | nmsftpuser/ZXemsFtp123 |
| ***FTP Port*** | 21111 |

The IOR file are stored under /ior directory. As the ftp probe feature is not working the ior file must be copied locally into $OMNIHOME/probes/solaris2.

**Probe Installation Details**

There are 2 instances of ZTE probe running in peer-to-peer failover, the primary is in mnmsun1 and backup in mnmsun2.

|  |  |  |
| --- | --- | --- |
| **Parameter** | **Primary Probe Server** | **Backup probe Server** |
| Ip Address | 10.123.105.40 | 10.231.105.41 |
| Hostname | mnmsun1 | mnmsun2 |
| Probe version | V3.0.0 | |
| Rules File | $OMNIHOME/probes/solaris2/zte\_corba\_wcdma.rules | |
| Props File | $OMNIHOME/probes/solaris2/zte\_corba\_wcdma.props | |
| PA Process Name | ZTE\_WCDMA\_PRB\_P\_1 | ZTE\_WCDMA\_PRB\_B\_1 |

Here are the specific properties set on both probes:

**zte\_corba\_wcdma.props@mnmsun1**

EntryPointIrpFile : $OMNIHOME/probes/solaris2/com.zte.ums.csl.naf.epirp.EPIRPImpl'

FileTransferIrpName : 'FILETRANSFER IRP V3.0.0'

AlarmIrpName : 'ALARM IRP V3.0.0'

NotificationIrpName : 'NOTIFICATION IRP V3.0.0'

#########################################

# Peer to Peer Failover Settings

#########################################

PeerPort : 2031

PeerHost : 'mnmsun2'

Mode : 'master'

**zte\_corba\_wcdma.props@mnmsun2**

EntryPointIrpFile : '/opt/IBM/tivoli/netcool/omnibus/probes/solaris2/com.zte.ums.csl.naf.epirp.EPIRPImpl'

FileTransferIrpName : 'FILETRANSFER IRP V3.0.0'

AlarmIrpName : 'ALARM IRP V3.0.0'

NotificationIrpName : 'NOTIFICATION IRP V3.0.0'

#########################################

# Peer to Peer Failover Settings

#########################################

PeerPort : 2031

PeerHost : 'mnmsun1'

Mode : 'slave'

**Probe Installation Details**

PA process was created for each probe under COL\_B\_PROBES service (ZTE\_WCDMA\_PRB\_P\_1 and ZTE\_WCDMA\_PRB\_B\_1)

## Probe Rules file

The table shows the event classification configured in the rules file.

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Value** | **Sample** |
| Manager | zte\_corba\_wcdma |  |
| OmcEms | zte\_corba\_wcdma |  |
| Agent | @[Manager@hostname](mailto:Manager@hostname) |  |
| AlertKey | NV\_ALARM\_ID\_ISO-8859-1 | 100001@1319033574017 |
| AlertGroup | ProbCause=converted(NV\_PROBABLE\_CAUSE) |  |
| EventType | EVENT\_NAME | LOSS\_OF\_FRAME |
| Node | NV\_MANAGED\_OBJECT\_INSTANCE\_ISO-8859-1 or NV\_MANAGED\_OBJECT\_INSTANCE |  |
| NodeAlias | extract($NV\_ADDITIONAL\_TEXT\_ISO-8859-1, "OFFICENAME:([^;]+)") | OFFICEID:37;OFFICENAME**:HWY1476\_\_S\_BarikotSwat**;OBJECTTYPE:SDR-II;OBJECTID:37;OBJECTNAME:…. |
| Summary | **IF** NV\_SPECIFIC\_PROBLEM\_ISO-8859-1 or NV\_MANAGED\_OBJECT\_INSTANCEEXISTS  @Summary = NV\_SPECIFIC\_PROBLEM\_ISO-8859-1 or NV\_MANAGED\_OBJECT\_INSTANCE  **IF Not**  @Summary = @AlertGroup | LOSS\_OF\_FRAME: Baseband data link error alarm |
| FirstOccurrence | NV\_EVENT\_TIME |  |
| LastOccurrence | NV\_EVENT\_TIME |  |
| Vendor | ZTE |  |
| Domain | BSS |  |
| Severity | Convert NV\_PERCEIVED\_SEVERITY using default lookup table |  |
| EventType | Convert EVENT\_TYPE using default lookup table and specific lookup table for environmental alarms |  |
|  |  |  |
|  |  |  |

**Here is how the Identifier field is being populated**

@Identifier = @Node + @AlertKey + @AlertGroup + @Type + @Manager + @EventType + $specific\_problem

**Events that are being discarded**

|  |  |
| --- | --- |
| **Field Name** | **Value** |
| AlertGroup | QUEUE\_SIZE\_EXCEEDED |
| AlertGroup | REINITIALIZED |
| Summary | PPP link broken |
| Summary | PPP Link Broken |

**EventId set as Impact policies requirement**

|  |  |  |  |
| --- | --- | --- | --- |
| **Field** | **Value** | **EventId** | **Policy** |
| Summary | "LOW VOLTAGE"  "RECTIFIER MAJOR"  "RECTIFIER MINOR"  "AIR CONDITIONER ALARM"  "AIR CONDITIONER ALARM"  "Environmental temperature is high" | BSSE\_001 | ML\_BSSEnvironmental |
| Summary | Site Abis control link broken"  "Link Broken Between OMM and NE" | NET\_BSS\_ZTE\_SD\_001 | ML\_ZTE\_SiteDown |
| Summary | "Cell interruption alarm" | NET\_BSS\_ZTE\_CD\_001 | ML\_ZTE\_PartialSiteDown |
| Summary | “E1/T1 input port unavailable”  “E1/T1 output port unavailable” | NET\_BSS\_ZTE\_PSDLR\_001 | ML\_ZTE\_PSDLR\_Link\_Related |

# Events Correlation – Impact Policies

## Enrichment Policy

For this policy a slight change was done in order to populate BTS\_Name and BSC\_Name fields.

### Rules File

IBSCMEID is being extract at probe rules file level as shown below:

@BSC\_Name =  extract($AI\_VS\_OTHER, "IBSCMEID=([^@]+)")

BSC\_Name field was added into collection layer Object Servers in order to be converted to BSC Name by enrichment policy.

### Policy Code Modification

The table and data type ZTE\_BSC\_NAME was created in MLDB and Impact respectively with the following details:

|  |  |
| --- | --- |
| **Column** | **Type** |
| IBSCMEID | Varchar(64) not null pimary key |
| BSC\_NAME | Varchar(64) not nul |

1. Added a BSC id to BSC name conversion table ZTE\_BSC\_NAME
2. Store the BSC id set at probe level at top of the enrichment policy
3. Set BTS\_Name = @NodeAlias and get BSC\_Name from conversion table ZTE\_BSC\_NAME

Here is the code added in Enrichment policy to enrich BTS\_Name and BSC\_Name fields

// Alex Silva 04-01-2012 Begin

// store BSC\_Name for ZTE events

zte\_bsc\_id = @BSC\_Name;

// Alex Silva 04-01-2012 END

.

.

.

// Alex Silva 04-01-2012 Begin ZTE Enrichment

if(@Manager = 'zte\_corba\_wcdma')

{

Log("Current Serial = " + @ServerSerial + " : " + @NodeAlias + ": ZTE BSC and BTS Name enrichment BEGIN");

@BTS\_Name = @NodeAlias;

if(zte\_bsc\_id !='')

{

Log("Current Serial = " + @ServerSerial + " : " + @NodeAlias + ": ZTE BSC ID not null");

ZTE\_DataType = "ZTE\_BSC\_NAME";

ZTE\_Filter = "IBSCMEID = '" + zte\_bsc\_id +"'";

ZTE\_Output = GetByFilter(ZTE\_DataType, ZTE\_Filter, False);

NumZTE\_Output = Length(ZTE\_Output);

if (NumZTE\_Output > 0)

{

Log("Current Serial = " + @ServerSerial + " : " + @NodeAlias + ": ZTE BSC\_Name Found");

@BSC\_Name = ZTE\_Output[0].BSC\_NAME;

}

else

{

Log("Current Serial = " + @ServerSerial + " : " + @NodeAlias + ": ZTE BSC\_Name Not Found");

@BSC\_Name = "N/A";

}

}

else

{

Log("Current Serial = " + @ServerSerial + " : " + @NodeAlias + ": ZTE BSC ID is null");

@BSC\_Name = "BSC ID N/A";

}

Log("Current Serial = " + @ServerSerial + " : " + @NodeAlias + ": ZTE BSC and BTS Name enrichment END");

}

// Alex Silva 04-01-2012 End ZTE Enrichment

## BSS Environmental

**Rules File**

The following code was added into zte probe rules file in order to set BSS environmental EventId in appropriate alarms.

switch(@Summary)

{

case "LOW VOLTAGE" | "RECTIFIER MAJOR" | "RECTIFIER MINOR" | "AIR CONDITIONER ALARM" | "AIR CONDITIONER ALARM" | "En

vironmental temperature is high":

@EventId = "BSSE\_001"

if(int(@Type) == 1)

{

@Severity = 4

}

default:

}

**Data Loading**

The following entries were loaded into SUMMARY\_LOOKUP\_TABLE in order to enable ZTE events to generated BSS Environmental events.

|  |  |  |  |
| --- | --- | --- | --- |
| **Domain** | **Summary** | **ALARM\_TYPE** | **Class** |
| BSS | LOW VOLTAGE | Power | 5010 |
| BSS | RECTIFIER MAJOR | Power | 5010 |
| BSS | RECTIFIER MINOR | Power | 5010 |
| BSS | AIR CONDITIONER ALARM | Temperature | 5010 |
| BSS | Environmental temperature is high | Temperature | 5010 |

**Synthetic Event EventId**

In order to have the right categorization in TSRM for ZTE synthetic events the following change is required in the BSS Environmental policy as per Azam indication:

“To set the EventId you should check the “SubNetwork” in identifier field if SubNetwork contains rns then EventId should be set as SYN\_BSSE\_002 and if SubNetwork contains bss Eventid should be set as SYN\_BSSE\_003.”

The following code was added in the existing policy:

// ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

// Setting EventId for ZTE Events

// ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

if (@Class == 5010)

{

Log("Current Serial = " + @ServerSerial + " : " + @NodeAlias + " ZTE BSSEnv Events");

node\_array = split(@Node, ",");

nod\_sub = node\_array[2];

category = rextract(nod\_sub ,"SubNetwork=([A-Z,a-z][A-Z,a-z][A-Z,a-z]).\*");

CAT = toupper(category);

if(CAT == "BSS")

{

Log("Current Serial = " + @ServerSerial + " : " + @NodeAlias + " ZTE BSSEnv Event SE is SYN\_BSSE\_003");

eventId = "SYN\_BSSE\_003";

}

elseif(CAT == "RNS")

{

Log("Current Serial = " + @ServerSerial + " : " + @NodeAlias + " ZTE BSSEnv Event SE is SYN\_BSSE\_002");

eventId = "SYN\_BSSE\_002";

}

}

## Site Down

In order to avoid confusing with existing BSS SD and MSD policy a new “Site Down” was created.

### Rules File

The EventId must be set at rules file level based on the event Summary, as shown in the table below.

|  |  |
| --- | --- |
| **EventId** | **Summary** |
| NET\_BSS\_ZTE\_SD\_001 | Site Abis control link broken |
| Link Broken Between OMM and NE |

### Object Server Trigger

The “SYN\_BSS\_ZTE\_SD\_001” EventId was added into the ML\_RaiseTT\_FirstOccurrence trigger in order to have LogTicket set to 1 when the sleep time is elapsed.

### TSRM Classification

The following classification was be added in TSRM

|  |  |
| --- | --- |
| **EventId** | **Classification** |
| SYN\_BSS\_ZTE\_SD\_001 | ZTE Site Down |

### Event Reader

**EventReader Name:** ml\_parentchildeventreader

**Policy name:** ML\_ZTE\_SiteDown and ML\_ZTE\_ClearSE

**ML\_ZTE\_SiteDown Filter:**

ImpactFlag = 4 And Severity =5  And Type = 1 And EventId in ('NET\_BSS\_ZTE\_SD\_001')

**ML\_ZTE\_ClearSE Filter:**

EventId in ('NET\_BSS\_ZTE\_SD\_001', 'NET\_BSS\_ZTE\_CD\_001', 'NET\_BSS\_ZTE\_PSDLR\_001') And SyntheticServerSerial > 0 And Severity = 0 And Type = 1

### Synthetic Event

The synthetic event is raised and its fields are filled as shown in the table below:

|  |  |
| --- | --- |
| **Field Name** | **Value** |
| Node | @SiteCode |
| Summary | “ZTE Site Down” |
| Severity | 5 |
| Type | 1 |
| Class | 205000 |
| Region | @Region |
| FirstOccurrence | @FirstOccurrence |
| LastOccurrence | @LastOccurrence |
| Domain | @Domain |
| ManCity | @ ManCity |
| ImpactFlag | 6 |
| OutsourceContractor | @ OutsourceContractor |
| BusImportance | @ BusImportance |
| Vendor | @ Vendor |
| OmcEms | @ OmcEms |
| MaintFlag | @MaintFlag |
| AdvCorrServerSerial | @ServerSerial |
| EventId | SYN\_BSS\_ZTE\_SD\_001 |
| OwnerUID | 65534 |
| Agent | Netcool Impact |
| TTHibernate | Calculate base on SiteCode |
| SiteCode | @SiteCode |
| Manager | Netcool Impact ZTE SD |

### Low Level Algorithm

**Processing a “Site Down” Problem Event**

* A problem network site down event is received.
* Set the ImpactFlag to 5 and return the event so it can’t be re-processed.
* Get the current site TT sleep time.
* Check if Raise “ZTE Partial Site Down” (PSD) or “ZTE Partial Site Down (Link Related)” (PSDLR) already exists in the OS.
* If PSD or PSDLRexists upgrade it to a SD event by setting Summary = “ZTE Site Down” and EventId = “SYN\_BSS\_ZTE\_SD\_001”, add the current event details to its journal. Set the current event’s ImpactFlag to “6”, return event, and exit.
* Check if Raise “ZTE Site Down” (SD) already exists in the Object Server (OS).
* If SD exists add the current event details to its journal, update its LastOccurrence, set the current event’s ImpactFlag to “6”, return event, and exit.
* If neither of them is present in the OS (PSD and SD) raise a “ZTE Site Down” synthetic event (SD SE).
* Get the just created SD SE’s ServerSerial and add current event’s details to its journal.
* Look up environmental events from same site and add their details to the SE’s Information field for all found. The Information field should be filled using each found event’s LastOccurrence and Summary separated by semi colon and space (“; “).
* Set current event’s ImpactFlag = 6 and then return event.

**Processing a Cleared Site, Cell Down and Link Related Network Problem Event**

This clear logic/policy will process cleared problem cell, link related and site down network events.

* A cleared problem network cell or site down event is received.
* Set ImpactFlag to “99” and return event to prevent re-processing.
* Check for other events which have same SyntheticServerSerial and Severity > 3.
* If any of the returned events are SD network than just add the current event details into the SD SE’s journal and exit.
* Check if all the returned events are PSD network events. If yes, force their recalculation by setting ImpactFlag to “4”. Add current event details to SD SE’s journal and set ImpactFlag to “100”. Return event and exit.

If there are no PSD/SD events active then clear the SD SE and add the current event’s details into the SE SD’s journal. Set ImpactFlag to “100” and return event.

### Low Level Flow Chart

**ML\_ZTE\_SiteDown**



**ML\_ZTE\_ClearSE**



## Partial Site Down

### Rules File

The EventId must be set at rules file level based on the event Summary, as shown in the table below.

|  |  |
| --- | --- |
| **EventId** | **Summary** |
| NET\_BSS\_ZTE\_CD\_001 | Cell interruption alarm |

### Object Server Trigger

The “SYN\_BSS\_ZTE\_PSD\_001” EventId was added into the ML\_RaiseTT\_FirstOccurrence trigger in order to have LogTicket set to 1 when the sleep time is elapsed.

### TSRM Classification

The following was added in TSRM

|  |  |
| --- | --- |
| **EventId** | **Classification** |
| SYN\_BSS\_ZTE\_PSD\_001 | ZTE Partial Site Down |

### Event Reader

**EventReader Name:** ml\_parentchildeventreader

**Policy name:** ML\_ZTE\_PartialSiteDown and ML\_ZTE\_ClearSE

**Filter:** ImpactFlag = 4 And Severity =4 And Type = 1 And EventId in ('NET\_BSS\_ZTE\_PSD\_001')

### Synthetic Event

The synthetic event to be raised should be populated with data as shown in the table below

|  |  |
| --- | --- |
| **Field Name** | **Value** |
| Node | @SiteCode |
| Summary | “ZTE Partial Site Down :: x Of The y Cells :: <NodeAlias\_List>”  or “ZTE Site Down” |
| Severity | 5 |
| Type | 1 |
| Class | 205010 |
| Region | @Region |
| FirstOccurrence | @FirstOccurrence |
| LastOccurrence | @LastOccurrence |
| Domain | @Domain |
| ManCity | @ ManCity |
| ImpactFlag | 6 |
| OutsourceContractor | @ OutsourceContractor |
| BusImportance | @ BusImportance |
| Vendor | @ Vendor |
| OmcEms | @ OmcEms |
| MaintFlag | @MaintFlag |
| AdvCorrServerSerial | @ServerSerial |
| EventId | SYN\_BSS\_ZTE\_PSD\_001 or SYN\_BSS\_ZTE\_SD\_001 |
| OwnerUID | 65534 |
| Agent | Netcool Impact |
| TTHibernate | Calculate base on SiteCode |
| SiteCode | @SiteCode |

### Low Level Algorithm

**Processing a “Cell Down” Problem Event**

* A problem network cell down event is received.
* Set the ImpactFlag to 5 and return the event so it can’t be re-processed.
* Get the sleeptime (hibernation or TT delay time) for the current site
* Look for all cd events from the same site in the OS.
* If none found set the ImpactFlag to “6”, return event and exit.
* Get the total number of cells for the current site and initialize is\_sd to is\_psd “false”.
* If total number of cells down is equal to the total number of cells then set is\_sd to “true”, otherwise set is\_psd to “true”.
* Check if there is already an SD SE in the OS.
* If a SD SE is found:
  + Look for network SD in the OS.
  + If found, add a journal entry for the current event into the SD SE, set the ImpactFlag to “6”, return event and exit.
  + If not found and is\_sd=true then set ImpactFlag = 6, return event and exit.
  + If not found and is\_sd=false then downgrade SD SE to PSD SE, update TTHibernate, and add journal entry for the current event into PSD SE. Set ImpactFlag = 6, return event and exit.
* If a SD SE is not found, check if PSD or PSDLR SE is already in the OS.
* If a PSD/PSDLR SE is not found:
  + If is\_sd= true, set SD SE’s Summary, EventId and Class. Otherwise set them using values from the PSD SE.
  + Raise a SE, which can be a SD or PSD depending on the is\_sd variable.
  + Get the ServerSerial of the SE just created and add current event journal entry.
  + Look up the environmental events from the same site and add their details to the SE’s Information field for all found. The Information field should be filled using each found event’s LastOccurrence and Summary, separated by semi colon and a space (“; “).
* If a PSD SE is found:
  + If is\_sd=true then upgrade PSD SE to SD SE, otherwise just update Summary
  + Add current event details into PSD/SD SE’s journal.
* Set ImpactFlag = 6 and return event.

**Processing a “Cell Down” Problem Event**

The clearance logic/policy is the same for SD, PSD and PSDLR, please refer to 3.3.6.

### Low Level Flow Chart

**ML\_ZTE\_PartialSiteDown**



## Partial Site Down Link Related

### Rules File

The EventId must be set at rules file level based on the event Summary, as shown in the table below.

|  |  |
| --- | --- |
| **EventId** | **Summary** |
| NET\_BSS\_ZTE\_PSDLR\_001 | E1/T1 input port unavailable |
| E1/T1 output port unavailable |

### Object Server Trigger

The “SYN\_BSS\_ZTE\_PSDLR\_001” EventId was added into the ML\_RaiseTT\_FirstOccurrence trigger in order to have LogTicket set to 1 when the sleep time is elapsed.

### TSRM Classification

The following was added in TSRM

|  |  |
| --- | --- |
| **EventId** | **Classification** |
| SYN\_BSS\_ZTE\_PSDLR\_001 | ZTE Partial Site Down (Link Related) |

### Event Reader

**Policy Name:** ML\_ZTE\_PSD\_Link\_Related

**ML\_ZTE\_PSD\_Link\_Related Filter:**

ImpactFlag = 4 And Severity =5 And Type = 1 And EventId in (’NET\_BSS\_ZTE\_PSDLR\_001’)

**ML\_ZTE\_ClearSE Filter:**

EventId in ('NET\_BSS\_ZTE\_SD\_001', 'NET\_BSS\_ZTE\_CD\_001', ’NET\_BSS\_ZTE\_PSDLR\_001’) And SyntheticServerSerial > 0 And Severity = 0 And Type = 1

### Synthetic Event

The synthetic event to be raised should be populated with data as shown in the table below.

|  |  |
| --- | --- |
| **Field Name** | **Value** |
| Node | @SiteCode |
| Summary | ZTE Partial Site Down (Link Related) |
| Severity | 5 |
| Type | 1 |
| Class | 205020 |
| Region | @Region |
| FirstOccurrence | @FirstOccurrence |
| LastOccurrence | @LastOccurrence |
| Domain | @Domain |
| ManCity | @ManCity |
| ImpactFlag | 6 |
| OutsourceContractor | @OutsourceContractor |
| BusImportance | @BusImportance |
| Vendor | @Vendor |
| OmcEms | @OmcEms |
| MaintFlag | @MaintFlag |
| AdvCorrServerSerial | @ServerSerial |
| EventId | SYN\_BSS\_ZTE\_PSDLR\_001 |
| OwnerUID | 65534 |
| Agent | Netcool Impact |
| TTHibernate | Calculate based on SiteCode |
| SiteCode | @SiteCode |
| Manager | Netcool Impact ZTE PSDLR |

### Low Level Algorithms

**Processing A Partial Site Down (Link Related) Problem Event**

* A problem Partial Site Down (Link Related) (PSDLR) network event is received
* Set the events ImpactFlag to 5 to prevent reprocessing
* Check the ObjectServer for an existing Site Down (SD)/Partial Site Down (PSD) synthetic event
* *If present:*
  + Add the events details to the journal of the existing SD/PSD synthetic event
  + Add the ServerSerial of the synthetic event to the events SyntheticServerSerial
  + Add the ServerName of the synthetic event to the events SyntheticServerName
* *Otherwise:*
  + Check the ObjectServer for an existing PSDLR synthetic event
  + *If present:*
    - Add the events details to the journal of the existing PSDLR synthetic event
    - Update the LastOccurrence field of the PSDLR synthetic event
    - Add the ServerSerial of the synthetic event to the events SyntheticServerSerial
    - Add the ServerName of the synthetic event to the events SyntheticServerName
  + *Otherwise:*
    - Get the sleep time for the event using the events SiteName and “Partial Site Down” as attributes
    - Create a new PSDLR synthetic event populated with data as described in [Section 4.2](#_Synthetic_Event)
    - Search for the PSDLR synthetic event recently created
    - Add the event details to the journal of the newly created PSDLR synthetic event
    - Add the ServerName of the synthetic event to the events SyntheticServerName
    - Add the ServerSerial of the synthetic event to the events SyntheticServerSerial
* Set the events ImpactFlag to 6 and exit policy

**Processing a Cleared Partial Site Down (Link Related) Network Problem Event**

The clearance logic/policy is the same for SD, PSD and PSDLR, please refer to 3.3.6.

### Low Level Flow Charts

**ML\_ZTE\_PSD\_Link\_Related**



## X25 Failure