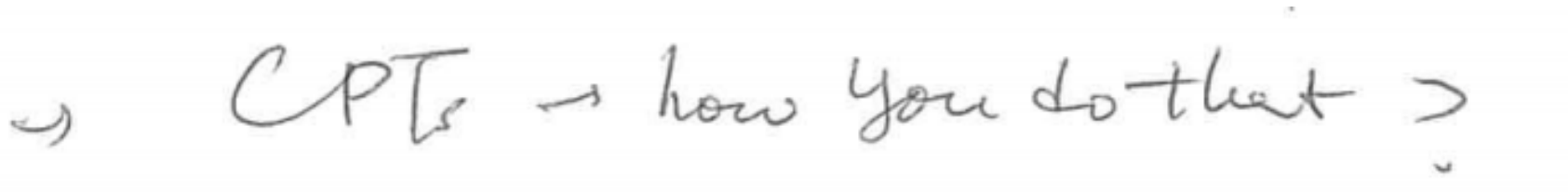# PHD - Progress update 10/11/2015

*Fauzy Bin Che Yayah*

*Nov 10, 2015*



The CPT ( Conditional Probability Table ) can be generated via Recursive Partitioning and Regression Trees

- Download sample Trouble Ticket using the Impala
- Sample original Trouble Ticket dataset below :-

```
suppressWarnings(suppressMessages(library(ggplot2)))
suppressWarnings(suppressMessages(library(xlsx)))
suppressWarnings(suppressMessages(library(sentiment)))
suppressWarnings(suppressMessages(library(wordcloud)))
suppressWarnings(suppressMessages(library(RODBC)))
suppressWarnings(suppressMessages(library(pander)))
suppressWarnings(suppressMessages(library(ggmap)))
suppressWarnings(suppressMessages(library(RColorBrewer)))
suppressWarnings(suppressMessages(library(Rstem)))
suppressWarnings(suppressMessages(library(tm)))
suppressWarnings(suppressMessages(library(NLP)))
suppressWarnings(suppressMessages(library(rmarkdown)))
suppressWarnings(suppressMessages(library(gridExtra)))
suppressWarnings(suppressMessages(library(Rmisc)))
suppressWarnings(suppressMessages(library(png)))
suppressWarnings(suppressMessages(library(grid)))
suppressWarnings(suppressMessages(library(igraph)))
suppressWarnings(suppressMessages(library(RPMG)))
suppressWarnings(suppressMessages(library(Hmisc)))
suppressWarnings(suppressMessages(library(rpart)))
suppressWarnings(suppressMessages(library(rpart)))
suppressWarnings(suppressMessages(library(rpart.plot)))
suppressWarnings(suppressMessages(library(RColorBrewer)))
suppressWarnings(suppressMessages(library(party)))
suppressWarnings(suppressMessages(library(partykit)))
suppressWarnings(suppressMessages(library(caret)))
suppressWarnings(suppressMessages(library(xtable)))
suppressWarnings(suppressMessages(library(knitr)))
suppressWarnings(suppressMessages(library(ascii)))
suppressWarnings(suppressMessages(library(pander)))

# Make big tree
b <- read.csv("cat.csv")
kable(head(b), digits = 4, longtable = TRUE , format = "pandoc" , padding = 0)
```

| tt_num | ccat_before | ccat_after | symp_before | symp_after | cc_before | cc_after | rc_before | rc_after |
|--------|-------------|------------|-------------|------------|-----------|----------|-----------|----------|
| 1-10406822634 | null | TM_CPE | Line Disconnect | Line Disconnect | null | TM_CPE_PG Hang | null | Change Wireless Chan |
| 1-10407333624 | null | Customer | Slow streaming | Slow streaming | null | Other_Fault | null | Advise Customer |
| 1-10407889932 | null | Customer | No Dial Tone | No Dial Tone | null | Customer_Behaviour | null | Advise Customer |
| 1-10407906915 | null | Customer | Line Disconnect | Line Disconnect | null | Customer_Not Reachable | null | Advise Customer |
| 1-10407922815 | null | Third Party Damage | Line Disconnect | Line Disconnect | null | Drop/Int. Fiber Damage by pest | null | 3rd Party_Drop/Int.Fi |
| 1-10407923040 | null | Customer | No Dial Tone | No Dial Tone | null | Clear While Localising | null | Normalise_Power Adp |

Converting the dataset into factor which is suitable for Regression Trees. Choose only 3 independent variables. ( Assume this variables is listed after the features selection process )

```
for(i in names(b)){

    num <- as.numeric(as.factor(b[,i]))
    b <- cbind(b,num)
    names(b)[names(b)=="num"] <- paste(names(b[i]),"_factor",sep = "")
    #print(paste(names(b[i]),"1",sep = ""))
}
b <- b[9:18]
b$tt_num_factor <- NULL
b$cc_before <- NULL
b$cc_before_factor <- NULL
b$ccat_before <- NULL
b$rc_before_before <- NULL
b$rc_before_factor <- NULL
b$ccat_before_factor <- NULL
b$rc_after_factor <- NULL
```

```r
b$symp_before_factor <- NULL
kable(head(b), digits = 4, longtable = TRUE , format = "pandoc" , padding = 0)
```

| rc_after | ccat_after_factor | symp_after_factor | cc_after_factor |
|---|---|---|---|
| Change Wireless Channel Mode | 32 | 68 | 200 |
| Advise Customer | 11 | 110 | 175 |
| Advise Customer | 11 | 91 | 49 |
| Advise Customer | 11 | 68 | 54 |
| 3rd Party_Drop/Int.FiberRestrd | 31 | 68 | 76 |
| Normalise_Power AdptrConnct. | 11 | 91 | 30 |

Using the `RPart` and applied to the sample dataset of the Trouble Ticket for 21k+ sample records with 3 independent variables below :-

```r
names(b)
```

```
## [1] "rc_after"          "ccat_after_factor" "symp_after_factor"
## [4] "cc_after_factor"
```

Conditional Probablity Table generated below :-

| | var | n | wt | dev | yval | complexity | ncompete | nsurrogate | yval2 | percentage |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | cc_after_factor | 21452 | 21452 | 16291 | 25 | 0.0492 | 2 | 1 | 25.0000 | 24.0583628566101 |
| 2 | cc_after_factor | 5464 | 5464 | 1473 | 25 | 0.0136 | 2 | 1 | 25.0000 | 73.0417276720351 |
| 4 | | 4668 | 4668 | 680 | 25 | 0.0000 | 0 | 0 | 25.0000 | 85.4327335047129 |
| 5 | cc_after_factor | 796 | 796 | 571 | 194 | 0.0071 | 2 | 2 | 194.0000 | 28.2663316582915 |
| 10 | cc_after_factor | 501 | 501 | 386 | 83 | 0.0026 | 1 | 2 | 83.0000 | 22.9540918163673 |
| 20 | | 253 | 253 | 138 | 83 | 0.0000 | 0 | 0 | 83.0000 | 45.4545454545455 |
| 21 | | 248 | 248 | 205 | 180 | 0.0000 | 0 | 0 | 180.0000 | 17.3387096774194 |
| 11 | | 295 | 295 | 70 | 194 | 0.0000 | 0 | 0 | 194.0000 | 76.271186440678 |
| 3 | ccat_after_factor | 15988 | 15988 | 14633 | 181 | 0.0492 | 2 | 1 | 181.0000 | 8.47510632974731 |
| 6 | ccat_after_factor | 10792 | 10792 | 9587 | 173 | 0.0492 | 2 | 1 | 173.0000 | 11.1656782802076 |
| 12 | | 1856 | 1856 | 686 | 25 | 0.0000 | 0 | 0 | 25.0000 | 63.0387931034483 |
| 13 | cc_after_factor | 8936 | 8936 | 7731 | 173 | 0.0266 | 2 | 2 | 173.0000 | 13.4847806624888 |
| 26 | cc_after_factor | 3779 | 3779 | 3338 | 93 | 0.0192 | 2 | 2 | 93.0000 | 11.669753903149 |
| 52 | cc_after_factor | 2860 | 2860 | 2419 | 93 | 0.0147 | 2 | 2 | 93.0000 | 15.4195804195804 |
| 104 | cc_after_factor | 2080 | 2080 | 1639 | 93 | 0.0125 | 2 | 0 | 93.0000 | 21.2019230769231 |
| 208 | cc_after_factor | 1150 | 1150 | 912 | 72 | 0.0112 | 2 | 1 | 72.0000 | 20.695652173913 |
| 416 | cc_after_factor | 729 | 729 | 513 | 72 | 0.0045 | 1 | 2 | 72.0000 | 29.6296296296296 |
| 832 | | 216 | 216 | 142 | 24 | 0.0000 | 0 | 0 | 24.0000 | 34.2592592592593 |
| 833 | | 513 | 513 | 297 | 72 | 0.0000 | 0 | 0 | 72.0000 | 42.1052631578947 |
| 417 | | 421 | 421 | 216 | 74 | 0.0000 | 0 | 0 | 74.0000 | 48.6935866983373 |
| 209 | cc_after_factor | 930 | 930 | 524 | 93 | 0.0102 | 0 | 1 | 93.0000 | 43.6559139784946 |
| 418 | | 507 | 507 | 105 | 93 | 0.0000 | 0 | 0 | 93.0000 | 79.2899408284024 |
| 419 | cc_after_factor | 423 | 423 | 253 | 94 | 0.0026 | 0 | 2 | 94.0000 | 40.1891252955083 |
| 838 | | 212 | 212 | 58 | 94 | 0.0000 | 0 | 0 | 94.0000 | 72.6415094339623 |
| 839 | | 211 | 211 | 153 | 166 | 0.0000 | 0 | 0 | 166.0000 | 27.4881516587678 |
| 105 | cc_after_factor | 780 | 780 | 541 | 137 | 0.0062 | 2 | 2 | 137.0000 | 30.6410256410256 |
| 210 | cc_after_factor | 414 | 414 | 189 | 137 | 0.0062 | 1 | 2 | 137.0000 | 54.3478260869565 |
| 420 | | 157 | 157 | 52 | 116 | 0.0000 | 0 | 0 | 116.0000 | 66.8789808917197 |
| 421 | | 257 | 257 | 33 | 137 | 0.0000 | 0 | 0 | 137.0000 | 87.15953307393 |
| 211 | ccat_after_factor | 366 | 366 | 255 | 183 | 0.0058 | 2 | 1 | 183.0000 | 30.327868852459 |
| 422 | | 248 | 248 | 137 | 183 | 0.0000 | 0 | 0 | 183.0000 | 44.758064516129 |
| 423 | | 118 | 118 | 23 | 199 | 0.0000 | 0 | 0 | 199.0000 | 80.5084745762712 |
| 53 | cc_after_factor | 919 | 919 | 606 | 207 | 0.0122 | 2 | 2 | 207.0000 | 34.0587595212187 |
| 106 | cc_after_factor | 366 | 366 | 167 | 76 | 0.0014 | 1 | 2 | 76.0000 | 54.3715846994536 |
| 212 | | 258 | 258 | 59 | 76 | 0.0000 | 0 | 0 | 76.0000 | 77.1317829457364 |
| 213 | | 108 | 108 | 86 | 74 | 0.0000 | 0 | 0 | 74.0000 | 20.3703703703704 |
| 107 | | 553 | 553 | 240 | 207 | 0.0000 | 0 | 0 | 207.0000 | 56.6003616636528 |
| 27 | cc_after_factor | 5157 | 5157 | 3959 | 173 | 0.0258 | 2 | 2 | 173.0000 | 23.2305604033353 |
| 54 | cc_after_factor | 1957 | 1957 | 1530 | 58 | 0.0098 | 2 | 1 | 58.0000 | 21.8191108840061 |
| 108 | cc_after_factor | 1541 | 1541 | 1114 | 58 | 0.0061 | 2 | 2 | 58.0000 | 27.709279688514 |
| 216 | cc_after_factor | 753 | 753 | 556 | 167 | 0.0061 | 1 | 1 | 167.0000 | 26.1620185922975 |
| 432 | cc_after_factor | 424 | 424 | 267 | 58 | 0.0050 | 1 | 2 | 58.0000 | 37.0283018867925 |
| 864 | | 280 | 280 | 123 | 58 | 0.0000 | 0 | 0 | 58.0000 | 56.0714285714286 |
| 865 | | 144 | 144 | 63 | 55 | 0.0000 | 0 | 0 | 55.0000 | 56.25 |
| 433 | | 329 | 329 | 133 | 167 | 0.0000 | 0 | 0 | 167.0000 | 59.5744680851064 |
| 217 | cc_after_factor | 788 | 788 | 525 | 58 | 0.0061 | 0 | 0 | 58.0000 | 33.3756345177665 |
| 434 | cc_after_factor | 561 | 561 | 313 | 58 | 0.0014 | 0 | 0 | 58.0000 | 44.2067736185383 |
| 868 | | 159 | 159 | 96 | 58 | 0.0000 | 0 | 0 | 58.0000 | 39.622641509434 |
| 869 | | 402 | 402 | 194 | 232 | 0.0000 | 0 | 0 | 232.0000 | 51.7412935323383 |
| 435 | | 227 | 227 | 103 | 231 | 0.0000 | 0 | 0 | 231.0000 | 54.625550660793 |
| 109 | cc_after_factor | 416 | 416 | 256 | 216 | 0.0042 | 1 | 1 | 216.0000 | 38.4615384615385 |
| 218 | | 182 | 182 | 99 | 181 | 0.0000 | 0 | 0 | 181.0000 | 45.6043956043956 |
| 219 | | 234 | 234 | 88 | 216 | 0.0000 | 0 | 0 | 216.0000 | 62.3931623931624 |
| 55 | cc_after_factor | 3200 | 3200 | 2008 | 173 | 0.0155 | 1 | 1 | 173.0000 | 37.25 |
| 110 | cc_after_factor | 2141 | 2141 | 1137 | 173 | 0.0068 | 1 | 0 | 173.0000 | 46.8939747781411 |
| 220 | | 481 | 481 | 273 | 46 | 0.0000 | 0 | 0 | 46.0000 | 43.2432432432432 |
| 221 | | 1660 | 1660 | 754 | 173 | 0.0000 | 0 | 0 | 173.0000 | 54.578313253012 |
| 111 | cc_after_factor | 1059 | 1059 | 619 | 174 | 0.0064 | 1 | 1 | 174.0000 | 41.5486307837583 |
| 222 | cc_after_factor | 313 | 313 | 208 | 173 | 0.0029 | 0 | 1 | 173.0000 | 33.5463258785943 |
| 444 | | 123 | 123 | 52 | 173 | 0.0000 | 0 | 0 | 173.0000 | 57.7235772357724 |
| 445 | | 190 | 190 | 108 | 222 | 0.0000 | 0 | 0 | 222.0000 | 43.1578947368421 |
| 223 | | 746 | 746 | 306 | 174 | 0.0000 | 0 | 0 | 174.0000 | 58.9812332439678 |

|     | var | n | wt | dev | yval | complexity | ncompete | nsurrogate | yval2 | percentage |
|-----|-----|----|----|-----|------|------------|----------|------------|-------|------------|
| 7 | cc_after_factor | 5196 | 5196 | 3997 | 181 | 0.0330 | 2 | 2 | 181.0000 | 23.0754426481909 |
| 14 | ccat_after_factor | 2277 | 2277 | 1724 | 156 | 0.0229 | 2 | 2 | 156.0000 | 24.286341677646 |
| 28 | cc_after_factor | 1293 | 1293 | 740 | 156 | 0.0133 | 1 | 1 | 156.0000 | 42.76875483372 |
| 56 | cc_after_factor | 530 | 530 | 243 | 157 | 0.0056 | 1 | 0 | 157.0000 | 54.1509433962264 |
| 112 |  | 170 | 170 | 49 | 152 | 0.0000 | 0 | 0 | 152.0000 | 71.1764705882353 |
| 113 |  | 360 | 360 | 103 | 157 | 0.0000 | 0 | 0 | 157.0000 | 71.3888888888889 |
| 57 |  | 763 | 763 | 280 | 156 | 0.0000 | 0 | 0 | 156.0000 | 63.302752293578 |
| 29 | cc_after_factor | 984 | 984 | 611 | 249 | 0.0052 | 1 | 0 | 249.0000 | 37.9065040650407 |
| 58 | cc_after_factor | 421 | 421 | 300 | 179 | 0.0006 | 0 | 0 | 179.0000 | 28.7410926365796 |
| 116 |  | 105 | 105 | 83 | 147 | 0.0000 | 0 | 0 | 147.0000 | 20.952380952381 |
| 117 |  | 316 | 316 | 207 | 179 | 0.0000 | 0 | 0 | 179.0000 | 34.4936708860759 |
| 59 | cc_after_factor | 563 | 563 | 227 | 249 | 0.0014 | 1 | 0 | 249.0000 | 59.6802841918295 |
| 118 |  | 189 | 189 | 141 | 179 | 0.0000 | 0 | 0 | 179.0000 | 25.3968253968254 |
| 119 |  | 374 | 374 | 63 | 249 | 0.0000 | 0 | 0 | 249.0000 | 83.1550802139037 |
| 15 | cc_after_factor | 2919 | 2919 | 1736 | 181 | 0.0312 | 1 | 1 | 181.0000 | 40.5275779376499 |
| 30 |  | 783 | 783 | 5 | 181 | 0.0000 | 0 | 0 | 181.0000 | 99.3614303959131 |
| 31 | cc_after_factor | 2136 | 2136 | 1222 | 247 | 0.0213 | 1 | 0 | 247.0000 | 42.7902621722846 |
| 62 | cc_after_factor | 553 | 553 | 181 | 181 | 0.0079 | 0 | 1 | 181.0000 | 67.2694394213381 |
| 124 |  | 374 | 374 | 3 | 181 | 0.0000 | 0 | 0 | 181.0000 | 99.1978609625668 |
| 125 |  | 179 | 179 | 49 | 248 | 0.0000 | 0 | 0 | 248.0000 | 72.6256983240224 |
| 63 |  | 1583 | 1583 | 694 | 247 | 0.0000 | 0 | 0 | 247.0000 | 56.1591914087176 |

sss
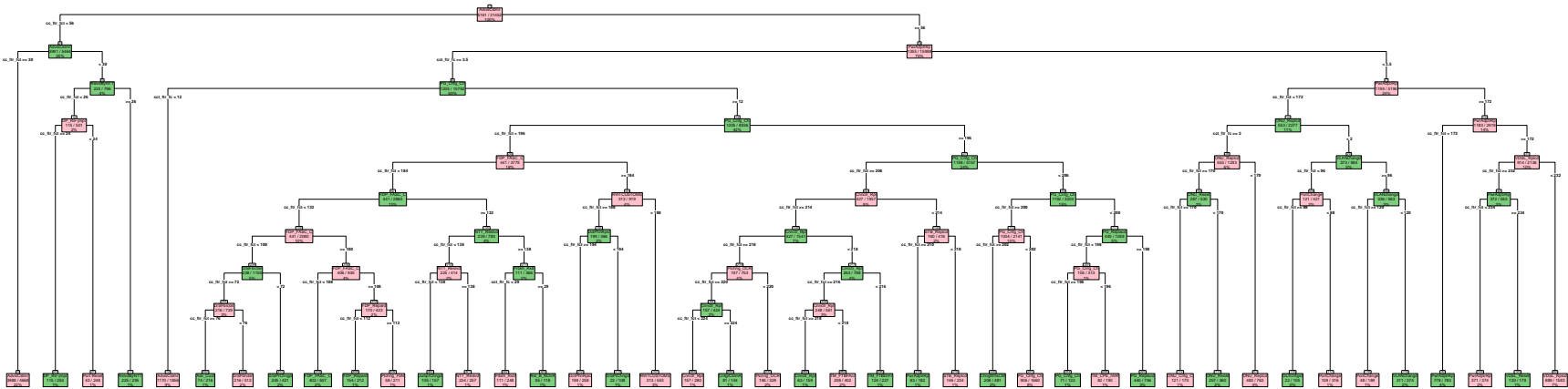


```r
gx <- as.data.frame(table(predict(tree.1, data_test, type = "class")))
kable(gx, digits=2 , format = "html" , padding = 0)
```

Var1

Freq

*PMW/RFC completed

0

*TNB Power Restore

0

3rd Party_D/S cable replaced

0

3rd Party_D/S cable restored

0

3rd Party_D/S Pair Changed

0

3rd Party_D/S Pair restored

0

3rd Party_Drop/Int.FiberReplce

0

3rd Party_Drop/Int.FiberRestrd

0

3rd Party_FDC_Replaced

0

3rd Party_FDP_PatchNormalised

0

3rd Party_FOC_D/S CableReplce

0

3rd Party_FOC_E/S CableRestord

0

3rd Party_FOC_E/S Switch Stdby

0

3rd Party_FOC_Joint Respliced

0

3rd Party_FOC_PatchNormalised

0

3rd Party_FOC_Tie CableReplce

0

3rd Party_FOC_Tie CableRestord

0

3rd Party_Jumper replaced

0

3rd Party_Jumper restored

0

3rd Party_Tie Copper Problem

0

ACPDB reset

0

ADSL MODEM CHANGED

0

ADSL MODEM RECONFIGURED

0

Adv_Cust

64

Advise Customer

1944

Advise TMUC

0

AdviseTMUCtoProvide full info

0

Alarm_Disabled

0

ATA Replaced

0

ATA&Dect Phone_Replaced

0

ATA&PG_Replaced

0

ATA_Replaced

0

Auto-Reset bypass

0

Auto-Reset replaced

0

BRAS_*Resolved By ANOC

0

BRAS_Reset Card

0

Building power restored

0

Cable Repair Completed

0

Cable_Reconnected

0

CCP_CPE Replaced

0

CCS BTU Configured

0

CCS CPE Configured

0

Change cabling/connector

0

Change port

0

Change Rectifier

0

Change Wireless Channel Mode

135

Change/Reset Card

0

Change_Cable

0

Change_ONU

0

Change_STB

0

CKC Restored

0

Clear While Localising

0

Clear while localizing

0

ConfigurationError

0

Configure Customer Account

39

Configure_BRAS

0

Configure_STB

0

Connector_Replaced

130

Control card replaced

0

Control card reset

0

CUST CONFIRM CCT UP&SATISFIED

0

CUST TO CHECK STATUS

0

Customer Abroad

0

Customer CPE Own Configuration

0

Customer_Reconnect CPE

0

Customer_ResetModem

0

Customer_ResetONU

0

Customer_Reuse Supplied TM CPE

0

CWL CANNOT GET CUSTOMER

0

D/S Cable Replaced

0

D/S Cable Restored

0

D/S Fiber cable replaced

150

D/S Fiber cable restored

0

D/S Pair Changed

156

D/S Pair Restored

0

Dect Phone Replaced

79

Dect Phone_Replaced

0

Dispatch activity to NGN NOC

0

Dispatch activity to NOC1 HBC

0

Dispatch activity to RNO

0

Dispatch activity to TVNOC

0

Dispatch_Activity_to_NOC1_HBC

0

DP_Re-jumper

71

E/S Fiber cable replaced

0

E/S Fiber cable restored

0

E/S pair replaced

0

E/S stdby fiber cable restored

0

FDC_Change Port

0

FDP_Change

0

FDP_Change Connector

0

FDP_Change Port

0

FDP_FASC_Connector_Cleaned

0

FDP_FASC_Connector_Replaced

141

FDP_Repaired

67

FDP_Replaced

0

FDP_Splitter Replace

0

Firmware & Software upgrading

0

Firmware_Update

0

FOC_D/S cable replaced

0

FOC_D/S cable restored

0

FOC_D/S core changed

0

FOC__D/S core restored

0

FOC__E/S cable replaced

0

FOC__E/S cable restored

0

FOC__E/S core changed

0

FOC__E/S core restored

0

FOC__OFM Pull n Resplice Cable

0

FOC__Tie cable replaced

0

FOC__Tie cable restored

0

Follow-up on new TR

0

HDSL MODEM RESET

0

HomePlug__Replaced

0

Incorrect Info

0

Install Lightning Arrestor

0

Int.__Wiring Replaced/Repaired

0

Jumper Changed

44

Jumper__changed

0

Lock port done

0

ME__OFM__Splicing fiber

0

Modify__Account

0

Modify__EPG

0

MSAN fan replaced

0

MSAN IGMP setting reconfigured

0

MSAN mcast setting reconfig

0

MSAN PON card replaced

0

MSAN PON card reset

0

MSAN POTS card replaced

0

MSAN POTS card reset

0

MSAN reconfigured

0

Network__Link__Restored

0

NOD__IMS Modify Routing

0

Normalise_CPE Connection

0

Normalise_Power AdptrConnct.

0

NSP_Activate/Deactve Signallng

0

NSP_Restart Signalling

0

NTT in Progress

0

NTT_Resolved

78

ODF Patch_Conntr. Repatched

0

ODF Patch_Opt TieCableReplaced

0

ODF Patch_Patch Cord Replaced

0

ODF Patching_Fiber Normalised

0

ODF repaired

0

OLT fan replaced

0

OLT IGMP setting reconfigured

0

OLT mcast setting reconfigured

0

OLT PON card reset

0

OLT reconfigured

30

ONU&DectPhone_Replaced

0

ONU&PG_Replaced

0

ONU&STB_Replaced

0

ONU_Change port

0

ONU_Config_Changed

50

ONU_Hang

0

ONU_Missing Config

0

ONU_Reconfigure password

0

ONU_Replaced

224

ONU_Reset

107

Others

0

Others_Prob_Action by RNO

0

Packaged_Added

0

Patch cord at cabinet replaced

0

Patch_Opt Connectors Cleaned

0

Patch_Opt Tie cable Repair

0

Patch_Opt Tie cable Replaced

0

Patching_Connector Repatched

0

Patching_Fiber Normalised

54

Patching_Opt Connct Replaced

94

Patching_Opt. Connct Repatched

0

Patching_Patch Cord Replaced

0

Patching_Replace Patch Cord

0

PG&Dect Phone_Replaced

0

PG&STB_Replaced

0

PG_Config_Changed

544

PG_Replaced

218

PG_Reset

0

PLAN MTCE BY CUST/VENDOR

0

Planned Maintenance Completed

0

PMW in Progress

0

Port Change

145

Port Reset

66

Power Adaptor Replaced

399

Premise Under Renovation

0

Problem_Restored

59

Re-activate

0

re-configure router

0

Reboot_OLT

0

Reboot_STB

0

Reconfig Sync

0

Replaced

0

Reset

0

Reset_OLT_Port

0

Reset_Password

0

Resolved By Account Service

0

Resolved By NTT

85

Resolved_By_ANOC

0

Resolved_By_Billing

0

Resolved_By_HBC

0

Resolved_By_NOC

0

Resolved_By_NOVA

33

Resolved_By_RNO

0

Resolved_By_Vendor

0

Restored by Others

0

RESTORED WHILE COORDINATING

0

Restored while localising

0

RETIGHTEN CONNECTOR BY CUST

0

Room aircond replaced

0

RWT CUSTOMER SATISFIED

166

SLT Phone replaced

0

STB&Dect Phone_Replaced

0

STB_Cable_Replaced

0

STB_Config _Changed

0

STB_Firmware_Downgraded

0

STB_Firmware_Upgraded

0

STB_MAC_Add _Registered

0

STB_Reboot

0

STB_Replaced

71

STB_Reset

0

Surge Arrestor Replacement

0

Tested Normal

0

TM TEST OK

0

TM_CPE_IW_RJ11 Repaired

0

TM_CPE_IW_RJ11 Replaced

61

TM_CPE_IW_RJ11 Replaced OTC

0

TM_CPE_IW_RJ45 Repaired

0

TM_CPE_IW_RJ45 Replaced

0

TM_CPE_IW_RJ45 Replaced OTC

0

TM_CPE_PG Config Problem

0

TM_CPE_PG Hang

0

TM_CPE_Voice Change Number

0

TM_FTB Drop Fiber repaired

0

TM_FTB Drop Fiber replaced

61

TM_FTB FASC connector replaced

122

TM_FTB Replaced

0

TMCPE Replaced

0

TNB Power Supply Restored

0

TNB/SESB/SESCO power restored

0

Trunk/uplink card replaced

0

Trunk/uplink card reset

0

Unbind_MAC_Add

0

User_Account

0

User_ID ReActivate

0

VDSL_Config_Changed

0

VDSL_Jumper Reconnect

0

VDSL_Modem&DectPhone_Replaced

0

VDSL_Modem&PG_Replaced

0

VDSL_Modem&STB_Replaced

0

VDSL_Replaced

470

VDSL_Reset

53

VLAN changed

109

VSAT ACTION BY CUSTOMER

0

# Next update

Prediction via SVM