**AIRTIME PROFILE**

**MODIFICATION TABLE**

|  |  |  |  |
| --- | --- | --- | --- |
| **No** | **Page** | **Content** | **Register date** |
| 1 | All | **Updated profile for all AIRTIME** | 24/01/2021 |
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| **Prepared by** | **Updated by** | **Verified by** | **Approved by** |
| XXXXX  **IT Operation Staff** | **IT Operation** | XXXXXXX  **Chief of IT department** | XXXXXXX  **Vice Director of IT** |

1. **SYSTEM OVERVIEW**
   1. **Project Name:** VMS
   2. **Developed by:** PARTNER  BITEL (IN-HOUSE)
   3. **Service Owner:**  ARABICA
   4. **Description**
   * The AIRTIME service is utilily for customer add money/voice/data to their balance when their balance is low
2. **LOGICAL MODEL**
   1. **Logical diagram**



**Function Diagram**



**Implementation Diagram**

* 1. **Modules description**
     + UssdProcess
       - Process customer’s USSD: add to customer’s balance (money, voice, data, bundle), look up customer’s debit
       - Connect to USSDGW to receive USSD
     + InviteProcess
       - Auto invite customer advance money/voice/data/bundle when customer’s balance is low
       - Connect to BCCSGW to view customer information
     + CdrReader
       - Process event: CDR low balance, CDR recharge, CDR loan to invite and synchronize customer’s loan
       - Connect to BillingGW to receive CDR (low balance, recharge, loan)
     + MoProcess
       - Process customer’s SMS: add to customer’s balance (money, voice, data, bundle), look up customer’s debit
       - Connect to BCCSGW to view customer information
       - Connect to BCCSGW to add to customer’s balance (money, voice, data, bundle)
     + SmsReceiver
       - Receive customer’s SMS from SMSGW
     + SmsSender\_Invite
       - Send SMS to customer over SMSGW
     + Connect to SMSGW to send SMS invitation
     + SmsSender
       - Send SMS to customer over SMSGW
       - Connect to SMSGW to send SMS
     + WsNotification
       - Receive SAT push result (customer response)
     + CallProcess (02 nodes on a server) + MediaServer (04 nodes on a server)
       - Process customer call: add to customer’s balance (money, voice, data), look up customer’s debit
       - Process FCR (fail call on not enough money) call
       - Connect to GMSC to receive call
     + Router
       - Process HA and LB between modules: CdrReader, MoProcess, SmsSender, SmsSender\_invite
     + CMS module provide web interface to admin query statistic and transaction detail
     + CallLoadBalancer
       - Route call from GMSC to CallProcess nodes
     + ReportProcess
       - Collect information for report
     + RabbitMQ
       - Queue data between modules: CdrReader, InviteProcess

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Module** | **Description** | **IP server** | **Setup dir** | **Config dir** | **Log path** | **MM Port** | **Mode** |
| CallLoadBalancer-01 | Route call from GMSC to CallProcess nodes | 10.121.5.77 | /u02/airtime/kamailio-4.2.7/sbin | /u02/airtime/kamailio-4.2.7/etc/kamailio |  |  | Active |
| CallProcess-01 | Handle call from customer | 10.121.5.77 | /u02/airtime/CallProcess | /u02/airtime/CallProcess/etc | /u02/airtime/CallProcess/log |  | Active |
| CallProcess-012 | Handle call from customer | 10.121.5.77 | /u02/airtime/CallProcess\_02 | /u02/airtime/CallProcess\_02/etc | /u02/airtime/CallProcess\_02/log |  | Active |
| media-server-01 | Handle voice from customer | 10.121.5.77 | /u02/airtime/media-server | /u02/airtime/media-server/conf | /u02/airtime/media-server/log |  | Active |
| media-server-012 | Handle voice from customer | 10.121.5.77 | /u02/airtime/media-server\_02 | /u02/airtime/media-server\_02/conf | /u02/airtime/media-server\_02/log |  | Active |
| media-server-013 | Handle voice from customer | 10.121.5.77 | /u02/airtime/media-server\_03 | /u02/airtime/media-server\_03/conf | /u02/airtime/media-server\_03/log |  | Active |
| media-server-014 | Handle voice from customer | 10.121.5.77 | /u02/airtime/media-server\_04 | /u02/airtime/media-server\_04/conf | /u02/airtime/media-server\_04/log |  | Active |
| sms\_receiver-01 | Filter SMS MO from customer | 10.121.5.77 | /u02/airtime/sms\_receiver | /u02/airtime/sms\_receiver/etc | /u02/airtime/sms\_receiver/log |  | Active |
| sms\_sender-01 | Send SMS to customer | 10.121.5.77 | /u02/airtime/sms\_sender | /u02/airtime/sms\_sender/etc | /u02/airtime/sms\_sender/log |  | Active |
| sms\_sender\_invite-01 | Send SMS inviting to customer | 10.121.5.77 | /u02/airtime/sms\_sender\_invite | /u02/airtime/sms\_sender\_invite/etc | /u02/airtime/sms\_sender\_invite/log |  | Active |
| MoProcess-01 | Handle MO from customer | 10.121.5.77 | /u02/airtime/MoProcess | /u02/airtime/MoProcess/etc | /u02/airtime/MoProcess/log |  | Active |
| router-01 | Manage cluster agent for HA purpose of module: sms\_sender, sms\_sender\_invite, MoProcess, ReportProcess | 10.121.5.77 | /u02/airtime/router | /u02/airtime/router/etc | /u02/airtime/router/log |  | Active |
| ReportProcess-01 | Collect information for report | 10.121.5.77 | /u02/airtime/ReportProcess | /u02/airtime/ReportProcess/etc | /u02/airtime/ReportProcess/log |  | Active |
| CdrReader-01 | Process CDR: threshold, topup, loan | 10.121.5.77 | /u02/airtime/CdrReader | /u02/airtime/CdrReader/etc | /u02/airtime/CdrReader/log |  | Active |
| InviteProcess-01 | Invite customer using AIRTIME service | 10.121.5.77 | /u02/airtime/InviteProcess | /u02/airtime/InviteProcess/etc | /u02/airtime/InviteProcess/log |  | Active |
| UssdProcess-01 | Handle USSD 252 from customer | 10.121.5.77 | /u02/airtime/UssdProcess | /u02/airtime/UssdProcess/etc | /u02/airtime/UssdProcess/log |  | Active |
| UssdProcess\_152-01 | Handle USSD 152 from customer | 10.121.5.77 | /u02/airtime/UssdProcess\_152 | /u02/airtime/UssdProcess\_152/etc | /u02/airtime/UssdProcess\_152/log |  | Active |
| WsNotification-01 | Receive SAT push response from customer | 10.121.5.77 | /u02/airtime/WsNotification | /u02/airtime/WsNotification/etc | /u02/airtime/WsNotification/log |  | Active |
| rabbitmq\_server-3.8.9-01 | Queue server | 10.121.5.77 | /u02/airtime/rabbitmq\_server-3.8.9 | /u02/airtime/rabbitmq\_server-3.8.9/etc | /u02/airtime/rabbitmq\_server-3.8.9/var/log/rabbitmq |  | Active |
| CMS | Lookup transaction log and service report | 10.121.5.77 | /u02/airtime/www |  |  |  | Active |
| CallLoadBalancer-02 | Route call from GMSC to CallProcess nodes | 10.121.5.78 | /u02/airtime/kamailio-4.2.7/sbin | /u02/airtime/kamailio-4.2.7/etc/kamailio |  |  | Active |
| CallProcess-02 | Handle call from customer | 10.121.5.78 | /u02/airtime/CallProcess | /u02/airtime/CallProcess/etc | /u02/airtime/CallProcess/log |  | Active |
| CallProcess-022 | Handle call from customer | 10.121.5.78 | /u02/airtime/CallProcess\_02 | /u02/airtime/CallProcess\_02/etc | /u02/airtime/CallProcess\_02/log |  | Active |
| media-server-02 | Handle voice from customer | 10.121.5.78 | /u02/airtime/media-server | /u02/airtime/media-server/conf | /u02/airtime/media-server/log |  | Active |
| media-server-022 | Handle voice from customer | 10.121.5.78 | /u02/airtime/media-server\_02 | /u02/airtime/media-server\_02/conf | /u02/airtime/media-server\_02/log |  | Active |
| media-server-023 | Handle voice from customer | 10.121.5.78 | /u02/airtime/media-server\_03 | /u02/airtime/media-server\_03/conf | /u02/airtime/media-server\_03/log |  | Active |
| media-server-024 | Handle voice from customer | 10.121.5.78 | /u02/airtime/media-server\_04 | /u02/airtime/media-server\_04/conf | /u02/airtime/media-server\_04/log |  | Active |
| sms\_receiver-02 | Filter SMS MO from customer | 10.121.5.78 | /u02/airtime/sms\_receiver | /u02/airtime/sms\_receiver/etc | /u02/airtime/sms\_receiver/log |  | Active |
| sms\_sender-02 | Send SMS to customer | 10.121.5.78 | /u02/airtime/sms\_sender | /u02/airtime/sms\_sender/etc | /u02/airtime/sms\_sender/log |  | Active |
| sms\_sender\_invite-02 | Send SMS inviting to customer | 10.121.5.78 | /u02/airtime/sms\_sender\_invite | /u02/airtime/sms\_sender\_invite/etc | /u02/airtime/sms\_sender\_invite/log |  | Active |
| MoProcess-02 | Handle MO from customer | 10.121.5.78 | /u02/airtime/MoProcess | /u02/airtime/MoProcess/etc | /u02/airtime/MoProcess/log |  | Active |
| router-02 | Manage cluster agent for HA purpose of module: sms\_sender, sms\_sender\_invite, MoProcess, ReportProcess | 10.121.5.78 | /u02/airtime/router | /u02/airtime/router/etc | /u02/airtime/router/log |  | Active |
| ReportProcess-02 | Collect information for report | 10.121.5.78 | /u02/airtime/ReportProcess | /u02/airtime/ReportProcess/etc | /u02/airtime/ReportProcess/log |  | Active |
| CdrReader-02 | Process CDR: threshold, topup, loan | 10.121.5.78 | /u02/airtime/CdrReader | /u02/airtime/CdrReader/etc | /u02/airtime/CdrReader/log |  | Active |
| InviteProcess-02 | Invite customer using AIRTIME service | 10.121.5.78 | /u02/airtime/InviteProcess | /u02/airtime/InviteProcess/etc | /u02/airtime/InviteProcess/log |  | Active |
| UssdProcess-02 | Handle USSD 252 from customer | 10.121.5.78 | /u02/airtime/UssdProcess | /u02/airtime/UssdProcess/etc | /u02/airtime/UssdProcess/log |  | Active |
| UssdProcess\_152-02 | Handle USSD 152 from customer | 10.121.5.78 | /u02/airtime/UssdProcess\_152 | /u02/airtime/UssdProcess\_152/etc | /u02/airtime/UssdProcess\_152/log |  | Active |
| WsNotification-02 | Receive SAT push response from customer | 10.121.5.78 | /u02/airtime/WsNotification | /u02/airtime/WsNotification/etc | /u02/airtime/WsNotification/log |  | Active |
| rabbitmq\_server-3.8.9-02 | Queue server | 10.121.5.78 | /u02/airtime/rabbitmq\_server-3.8.9 | /u02/airtime/rabbitmq\_server-3.8.9/etc | /u02/airtime/rabbitmq\_server-3.8.9/var/log/rabbitmq |  | Active |
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1. **DATABASE MODEL**

**PROVIDE FULL DB DETAIL: DB, Schemas, Tables, among other dependencias (procedurs, packages, triggers, views, functions, etc)**

* 1. **Database description**

|  |  |  |  |
| --- | --- | --- | --- |
| **N°** | **Application** | **DB** | **Description** |
| 1 | VMS | DB  10.121.5.152  10.121.5.154  10.121.5.142  10.121.5.140 | Schema: *AIRTIME\_ARAB*  Service name: *vasd*  User/pass: *AIRTIME\_ARAB/* *PKfi6#5PshKdpS96*  Url: *jdbc:oracle:thin:@(DESCRIPTION\_LIST=(LOAD\_BALANCE=off)(FAILOVER=on)(DESCRIPTION=(LOAD\_BALANCE=on)(ADDRESS=(PROTOCOL=tcp)(HOST=10.121.5.152)(PORT=1521))(ADDRESS=(PROTOCOL=tcp)(HOST=10.121.5.154)(PORT=1521))(CONNECT\_DATA=(SERVER=SHARED)(SERVICE\_NAME=vasd)))(DESCRIPTION=(LOAD\_BALANCE=on)(ADDRESS=(PROTOCOL=tcp)(HOST=10.121.5.142)(PORT=1521))(ADDRESS=(PROTOCOL=tcp)(HOST=10.121.5.140)(PORT=1521))(CONNECT\_DATA=(SERVER=SHARED)(SERVICE\_NAME=vasd))))* Tables: 1) LOAN: Holds all current customer’s debit 2) LOAN\_HIS: Holds all history of customer’s debit  3) MO\_HIS: Holds all history of SMS MO from customer  4) MT\_HIS: Holds all history of SMS MT to customer |

1. **Connection Descriptions**

|  |  |  |  |
| --- | --- | --- | --- |
| **N°** | **From** | **To** | **Protocol** |
| 1 | AIRTIME  10.121.5.77  10.121.5.78 | GMSC  10.131.1.1/32  10.131.2.1/32  10.131.3.1/32  10.131.4.1/32 | 5060\_UDP |
| 2 | AIRTIME  10.121.5.77  10.121.5.78 | Media Server  10.131.1.0/24  10.131.2.0/24  10.131.3.0/24  10.131.4.0/24 | 20-65535\_UDP |
| 3 | GMSC  10.131.1.1/32  10.131.2.1/32  10.131.3.1/32  10.131.4.1/32 | AIRTIME  10.121.5.77  10.121.5.78 | 5060\_UDP |
| 4 | Media Server  10.131.1.0/24  10.131.2.0/24  10.131.3.0/24  10.131.4.0/24 | AIRTIME  10.121.5.77  10.121.5.78 | 20-65535\_UDP |
| 5 | AIRTIME  10.121.5.77  10.121.5.78 | BccsGW  10.121.8.5 | 8166\_TCP |
| 6 | AIRTIME  10.121.5.77  10.121.5.78 | SMSGW (MO)  10.121.5.14  10.121.5.15 | 8101\_TCP |
| 7 | AIRTIME  10.121.5.77  10.121.5.78 | SMSGW (MT)  10.121.7.42 | 8110\_TCP |
| 8 | AIRTIME  10.121.5.77  10.121.5.78 | USSDGW  10.121.5.14  10.121.5.15  10.121.5.14  10.121.5.15 | 6507\_TCP  6509\_TCP  6996\_TCP  6998\_TCP |
| 9 | USSDGW  10.121.5.14  10.121.5.15  10.121.5.14  10.121.5.15 | AIRTIME  10.121.5.77  10.121.5.78 | 8210\_TCP  8989\_TCP  8212\_TCP  8991\_TCP |
| 10 | AIRTIME  10.121.5.77  10.121.5.78 | AIRTIME  10.121.5.77  10.121.5.78 | 8000-10000\_TCP |
| 11 | AIRTIME  10.121.5.77  10.121.5.78 | AIRTIME  10.121.5.77  10.121.5.78 | 20-65535\_UDP |
| 12 | AIRTIME  10.121.5.77  10.121.5.78 | DB  10.121.5.152  10.121.5.154  10.121.5.142  10.121.5.140 | 1521\_TCP |

1. **SIZING**
   1. **VMS: 03 server application**

|  |  |  |  |
| --- | --- | --- | --- |
| **Server** | **Resource** | **Description** | **Qty** |
| 10.121.5.77 | CPU | Intel(R) Xeon(R) CPU E5-2630 v4 @ 2.20GHz | 1 |
| Cores | 16 | 1 |
| Ram | 32 GB | 1 |
| HDD | 500 GB | 1 |
| User/pass | airtime/@1rTim3#2022$ |  |
| 10.121.5.78 | CPU | Intel(R) Xeon(R) CPU E5-2630 v4 @ 2.20GHz | 1 |
| Cores | 16 | 1 |
| Ram | 32 GB | 1 |
| HDD | 500 GB | 1 |
| User/pass | airtime/@1rTim3#2022$ |  |

1. **OPERATION MANUAL**

**Start all module**

* 1. **Start**
* cd /u02/airtime
* ./startall.sh

**CallLoadBalancer (Kamailio)**

* 1. **Start**
* cd /u02/airtime/kamailio-4.2.7/sbin
* ./kamctl start  
  1. **Stop**
* cd /u02/airtime/kamailio-4.2.7/sbin
* ./kamctl stop
  1. **Restart**
* cd /u02/airtime
* kamailio\_restart.sh

**CallProcess (02 nodes on a server)**

* 1. **Restart all**
* cd ~
* ./ callprocess\_restart.sh
  1. **Home directory (MODULE\_HOME)**
* /u02/airtime/CallProcess
* /u02/airtime/CallProcess\_02
  1. **Start**
* cd MODULE\_HOME/bin
* ./process start  
  1. **Stop**
* cd MODULE\_HOME/bin
* ./process stop
  1. **Restart**
* cd MODULE\_HOME/bin
* ./process restart
  1. **Check Log**
* cd MODULE\_HOME/log/process
* tail -f full.log

**media-server (04 nodes on a server)**

* 1. **Restart all**
* cd ~
* ./mediaserver\_restart.sh
  1. **Home directory (MODULE\_HOME)**
* /u02/airtime/media-server
* /u02/airtime/media-server\_02
* /u02/airtime/media-server\_03
* /u02/airtime/media-server\_04
  1. **Start**
* cd MODULE\_HOME/bin
* ./mms.sh start  
  1. **Stop**
* cd MODULE\_HOME/bin
* ./mms.sh stop
  1. **Restart**
* cd MODULE\_HOME/bin
* ./mms.sh restart
  1. **Check Log**
* cd MODULE\_HOME/log
* tail -f full.log

**sms\_receiver**

* 1. **Start**
* cd /u02/airtime/sms\_receiver/bin
* ./process start  
  1. **Stop**
* cd /u02/airtime/sms\_receiver/bin
* ./process stop
  1. **Restart**
* cd /u02/airtime/sms\_receiver/bin
* ./process restart
  1. **Check Log**
* cd /u02/airtime/sms\_receiver/log/process
* tail -f full.log

**sms\_sender**

* 1. **Start**
* cd /u02/airtime/sms\_sender/bin
* ./process start  
  1. **Stop**
* cd /u02/airtime/sms\_sender/bin
* ./process stop
  1. **Restart**
* cd /u02/airtime/sms\_sender/bin
* ./process restart
  1. **Check Log**
* cd /u02/airtime/sms\_sender/log/process
* tail -f full.log

**sms\_sender\_invite**

* 1. **Start**
* cd /u02/airtime/sms\_sender\_invite/bin
* ./process start  
  1. **Stop**
* cd /u02/airtime/sms\_sender\_invite/bin
* ./process stop
  1. **Restart**
* cd /u02/airtime/sms\_sender\_invite/bin
* ./process restart
  1. **Check Log**
* cd /u02/airtime/sms\_sender\_invite/log/process
* tail -f full.log

**MoProcess**

* 1. **Start**
* cd /u02/airtime/MoProcess/bin
* ./process start  
  1. **Stop**
* cd /u02/airtime/MoProcess/bin
* ./process stop
  1. **Restart**
* cd /u02/airtime/MoProcess/bin
* ./process restart
  1. **Check Log**
* cd /u02/airtime/MoProcess/log/process
* tail -f full.log

**router**

* 1. **Start**
* cd /u02/airtime/router/bin
* ./process start  
  1. **Stop**
* cd /u02/airtime/router/bin
* ./process stop
  1. **Restart**
* cd /u02/airtime/router/bin
* ./process restart
  1. **Check Log**
* cd /u02/airtime/router/log
* tail -f full.log

**ReportProcess**

* 1. **Start**
* cd /u02/airtime/ReportProcess/bin
* ./process start  
  1. **Stop**
* cd /u02/airtime/ReportProcess/bin
* ./process stop
  1. **Restart**
* cd /u02/airtime/ReportProcess/bin
* ./process restart
  1. **Check Log**
* cd /u02/airtime/ReportProcess/log/process
* tail -f full.log

**UssdProcess**

* 1. **Start**
* cd /u02/airtime/UssdProcess/bin
* ./process start  
  1. **Stop**
* cd /u02/airtime/UssdProcess/bin
* ./process stop
  1. **Restart**
* cd /u02/airtime/UssdProcess/bin
* ./process restart
  1. **Check Log**
* cd /u02/airtime/UssdProcess/log/process
* tail -f full.log

**UssdProcess\_152**

* 1. **Start**
* cd /u02/airtime/UssdProcess\_152/bin
* ./process start  
  1. **Stop**
* cd /u02/airtime/UssdProcess\_152/bin
* ./process stop
  1. **Restart**
* cd /u02/airtime/UssdProcess\_152/bin
* ./process restart
  1. **Check Log**
* cd /u02/airtime/UssdProcess\_152/log/process
* tail -f full.log

**InviteProcess**

* 1. **Start**
* cd /u02/airtime/InviteProcess/bin
* ./process start  
  1. **Stop**
* cd /u02/airtime/InviteProcess/bin
* ./process stop
  1. **Restart**
* cd /u02/airtime/InviteProcess/bin
* ./process restart
  1. **Check Log**
* cd /u02/airtime/InviteProcess/log/process
* tail -f full.log

**WsNotification**

* 1. **Start**
* cd /u02/airtime/WsNotification/bin
* ./process start  
  1. **Stop**
* cd /u02/airtime/WsNotification/bin
* ./process stop
  1. **Restart**
* cd /u02/airtime/WsNotification/bin
* ./process restart
  1. **Check Log**
* cd /u02/airtime/WsNotification/log/process
* tail -f full.log

**rabbitmq\_server-3.8.9**

* 1. **Start**
* cd /u02/airtime/rabbitmq\_server-3.8.9/sbin
* ./rabbitmq-server -detached  
  1. **Stop**
* cd /u02/airtime/rabbitmq\_server-3.8.9/sbin
* ./rabbitmqctl stop
  1. **Restart**
* cd /u02/airtime/rabbitmq\_server-3.8.9/sbin
* ./rabbitmqctl stop
* ./rabbitmq-server -detached
  1. **Check Log**
* cd /u02/airtime/rabbitmq\_server-3.8.9/var/log/rabbitmq
* tail -f rabbit@pe-airtime01.log

**CMS**

* 1. **Start**
* start  
  1. **Stop**
* stop
  1. **Restart**
* restart
  1. **Check Log**
* tail -f full.log

1. **DDITIONAL INFORMATION**

**Language:** Java

**Support High Availability:** YES

1. **OPERATIONAL SUPPORT SERVICE**

If the responsible finds that the issue cannot be solved at their level, then it should be escalated to the next level and they can work on it for the allotted time.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ESCALATION MATRIX** | | | | |
| **Level** | **Responsible** | **Time Response** | **Contact** | **Description** |
| **L1** | XXXXXXXXXXXX | <=1.5 hours | XXXXXXXXXXXXXXXX | XXXXXXXXXXXXXXXXXXX |
| **L2** | XXXXXXXXXXX | <=1.5 hours | XXXXXXXXXXXXXXX | XXXXXXXXXX. |