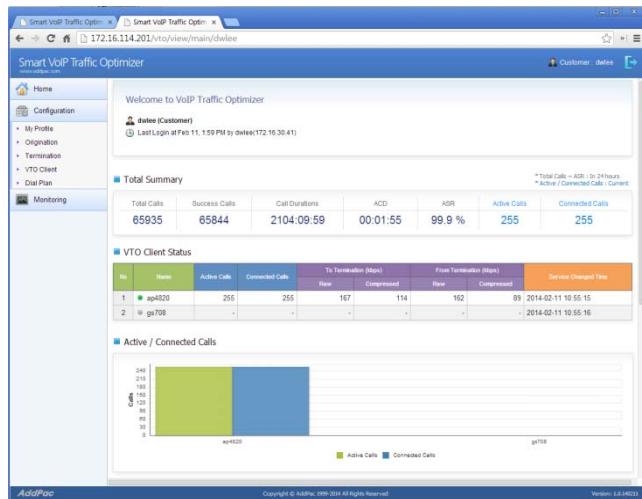


Multi-SIM GSM Gateway Human Behavior Service for Anti-SIM Block



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2014, Sales and Marketing

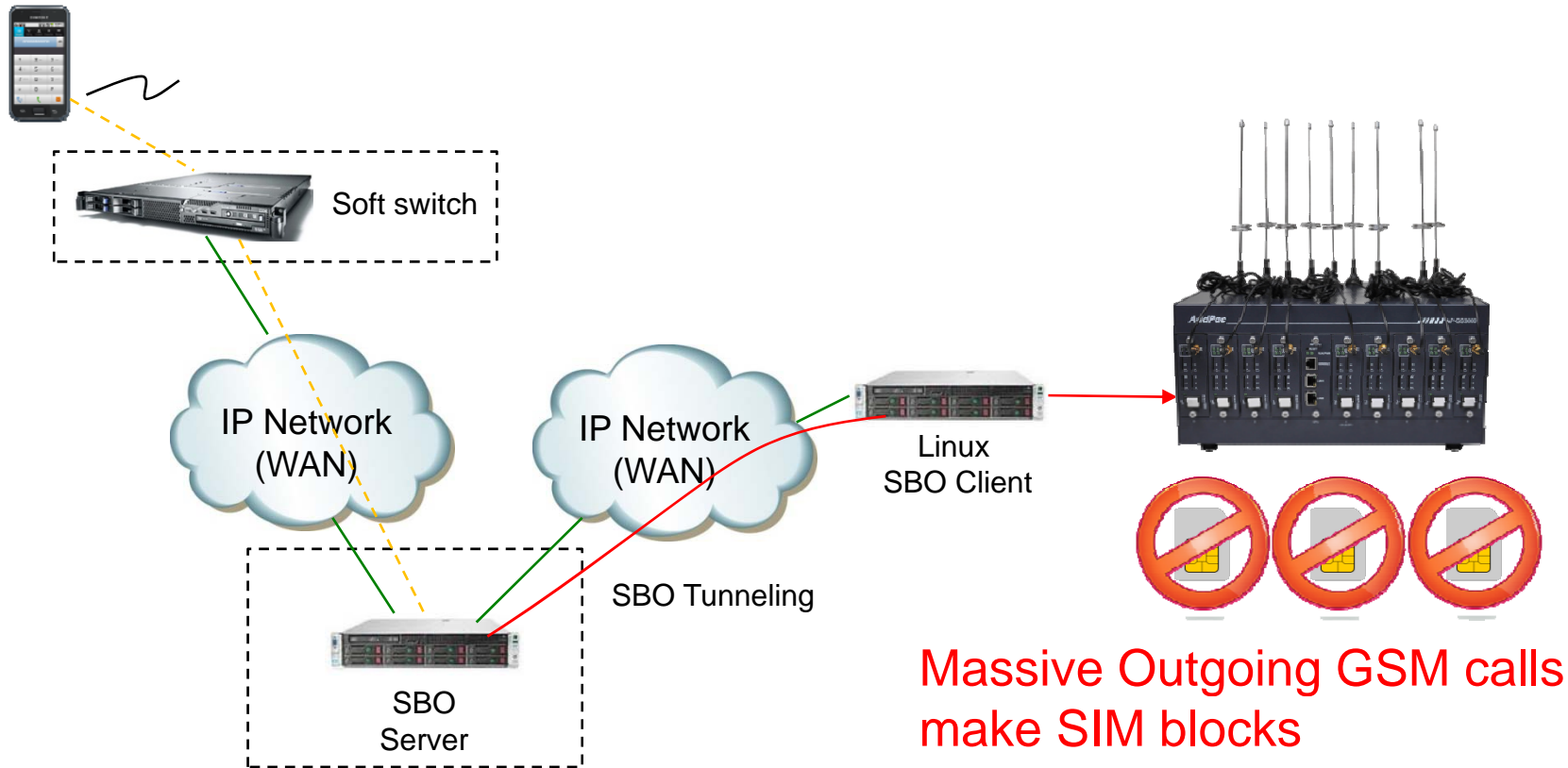
Contents

- Current SIM Block Problems
- Do you want Anti-SIM block?
 - Human Cellular Phone Call Pattern Modeling
- Human Cellular Phone Call Pattern Modeling Solution needs Large SIM Pool
- Multi-SIM GSM Gateway with Human Behavior Features
- Who provides Smart Call Routing for GSM Gateways?
- Anti-SIM Block Function Roles
- Network Diagram
- Smart Web Manager for Human Cellular Phone Call Pattern Modeling

Current SIM Block Problems

Other Vendor SBO + normal GSM gateway

Site A (Call Origination)



Do you want Anti-SIM Block?

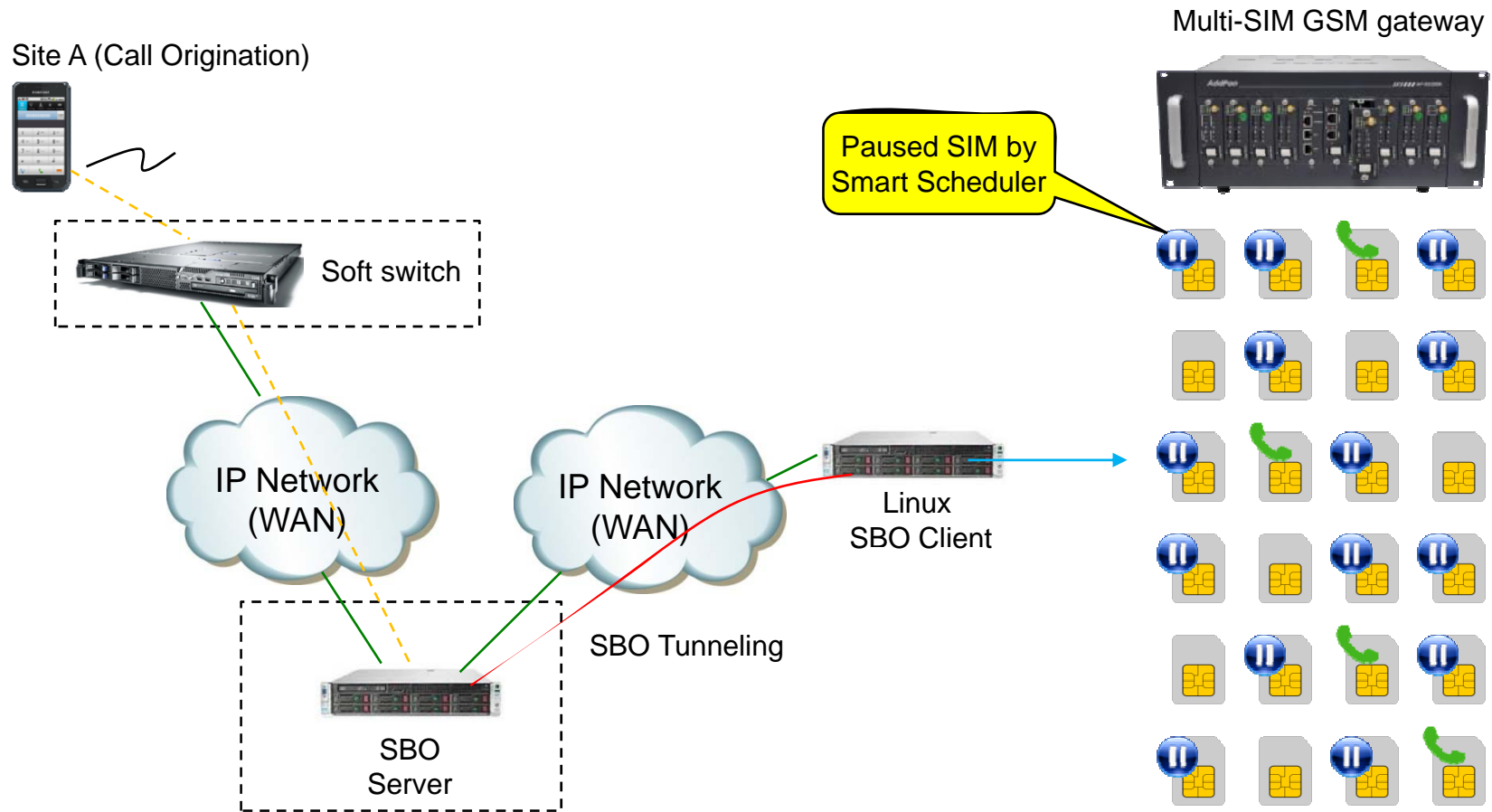
→ Human Cellular Phone Call Pattern Modeling

- Human Cellular Phone Call Pattern at GSM Gateway
 - Make Outgoing and incoming call
 - Real Call Connect for Incoming Call
 - Real Call Answer and Different Call Connected Time
 - Set Max Call Connection Time in day (Ex : 1 or 2 hour per SIM during 1 day)
 - Select the Most Idle(least usage) SIM Card for Termination Call
 - IMEI Auto Change (Using Registered IMEI not Fake)
 - Random Outbound Call Idle Interval
 - etc

Human Cellular Phone Call Pattern Modeling Solution needs Large SIM Pool

- By limited GSM call quota on gateway, we need lots of GSM ports and SIMs for handling massive calls.
- If you start new GSM call termination business,
 - (Solution) Choose Multi-SIM GSM gateway which has human behavior function.
- If you already have single SIM GSM gateways,
 - (Solution) Upgrade it to support human behavior function and operate more GSM gateways for massive calls.
 - (Problem) It is necessary to support smart call routing from softswitch to gateways.

Multi-SIM GSM Gateway with Human Behavior Feature



Smart Human Cellular Phone Call Pattern Feature in Multi-SIM gateway provides Anti-SIM Block.

Who provides Smart Call Routing for GSM Gateways?

- **AddPac VTO Service** provides the **Smart Call Routing** from Softswitch to GSM gateways.
- Without VTO service, terminating call to unavailable gateway by exhausted call quota will be failed and decrease ASR (Answer Seizure Ratio).
- VTO Server gathering port status from gateways for load balancing and routing to available gateways.
- Also, the VTO server controls incoming call traffic from Softswitch to increase ASR.

Anti-SIM Block Function Roles

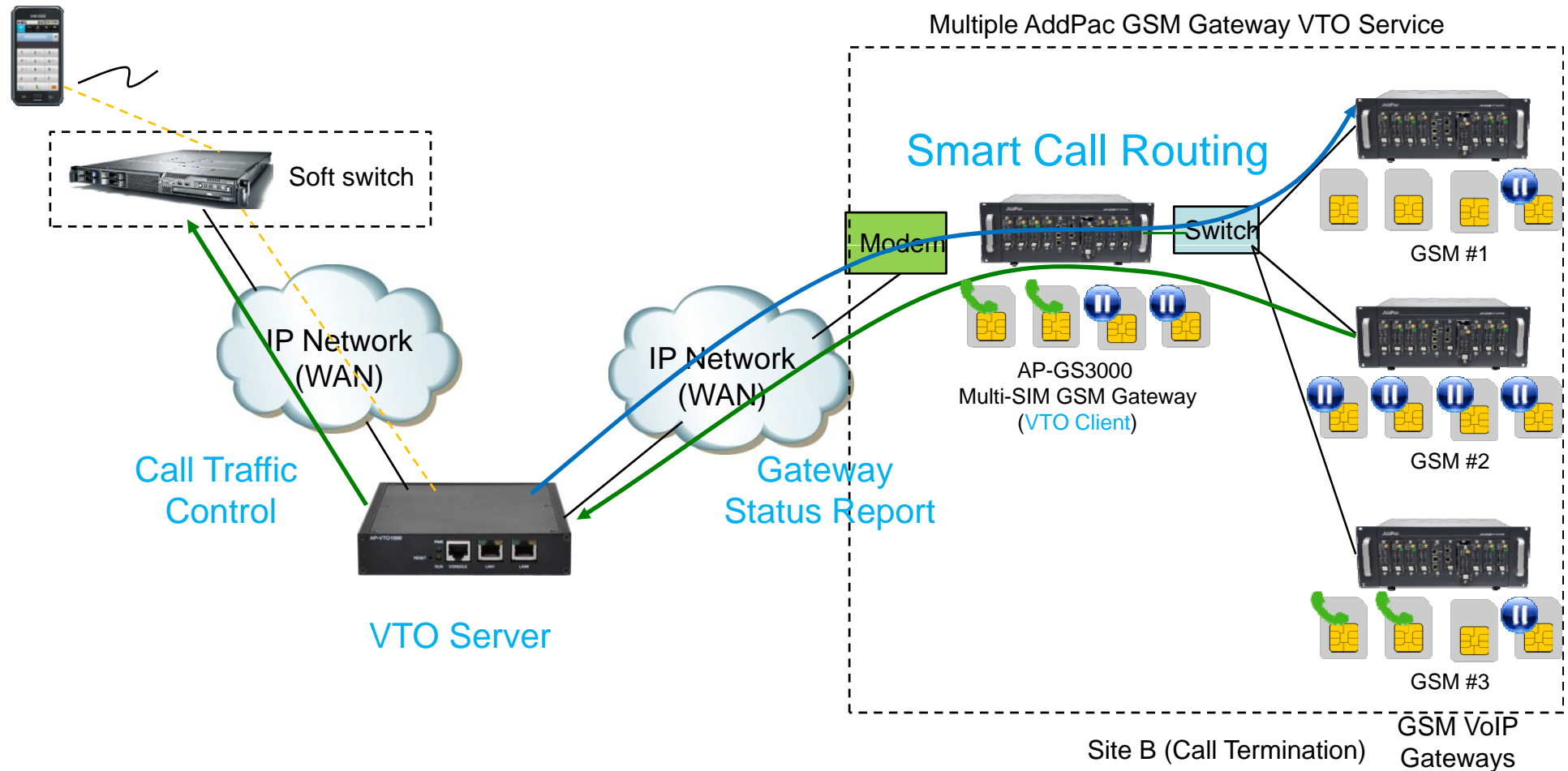
VTO (VoIP Traffic Optimizer) Service

- GSM Gateway
 - Use Human Cellular Phone Call Pattern Model
 - Report Service State to VTO Client
- VTO Client
 - Relay GSM Gateway Service State Information to VTO Server
- VTO Server
 - Act as SIP Proxy Role + VTO Server Role
 - Maintain GSM gateway Service State
 - Call Routing using dial-plan and GSM Service State

Anti-SIM Block Operation Network Diagram

VTO (VoIP Traffic Optimizer) Service

Site A (Call Origination)





Smart Web Manager for Human Cellular Phone Call Pattern Modeling

Human Behavior Call Pattern Modeling Features

- Auto Mobile Management Call Generation
 - Support inter call idle interval timer.
 - Support management quota for intentional inbound call generation
 - After disconnection of a general call, a intentional inbound call is created (the least hunted port is selected).
 - If a management quota is exhausted, no more intentional call is created.
- Intentional Call Inbound Option
 - Support automatic random ring timer.
 - Support random call connection time.
- *For using this features, my phone number should be gathered by USSD code.*

Inter Call Idle Interval

Smart Web Manager
www.addpac.com

System +

Basic +

Advanced -

- Port Control
- Mobile PINs
- Mobile USSD
- multi-SIM Manager
- multi-SIM Balance
- multi-SIM USSD
- Fax
- Service**
- Filtering
- Security
- Radius
- SNMP
- WEB Callback
- Mobile Callback

Miscellaneous -

- Mobile Summary
- System Status
- Mobile Status
- Mobile Port Statistics
- Call Log

Service

Application Services

- Enable Telnet Server Port (default 23, 1-65535)
- Enable HTTP Server Port (default 80, 1-65535)
- Enable FTP Control Port (default 21, 1-65535)
Data Port (default 20, 1-65535)
- Enable Syslog Primary Server Port (default 514)
Secondary Server Port (default 514)
Log Level
Log Command

Timer

- Inter Digit Time sec (default 3, 1-600)
- Mobile Error Delay Disconnect sec(disable 0, 0-600)
- Mobile Inter Call Idle Interval** sec(disable 0, 0-600)

Call Service

- Transfer Hook-Flash Not-assigned
- Hold Hook-Flash Not-assigned

SIP Transfer

- Mode blind Attended

Skype Server

- Use Enable Disable

Hunt

- Algorithm

Mobile Inter Call Idle Interval
- Inter Call Idle Interval timer(sec)

Mobile Call Generator

Smart Web Manager
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Mobile Call Generator

Inbound Call Receive Option
- Max Connection time(sec)
- random number generation(10 ~ MAX)

Inbound Call Max Connection Time (sec, default=10, 10~60) random connection (10 ~ max-connection-time)

Apply

USSD Code
- for getting my phone number
- my phone number is used for automatic inbound call generation

USSD Code for getting my phone number (max carrier = 5)

Carrier ID	USSD String	Control
<input type="text"/>	<input type="text"/>	<input type="button" value="Add"/>

Miscellaneous

- Mobile Summary
- System Status
- Mobile Status
- Mobile Port Statistics
- Call Log
- System Log
- Ping
- Mobile Band
- BTS Selection
- GSM BTS Info
- [CDMA]Mobile BS Info
- multi-SIM Switch Log
- SIM Traffic Monitor
- Mobile Call Generator**

Management Quota(1/3)

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Mobile LCR / Tariff Policy

Management Quota
- quota for Intentional inbound call generation

Tariff Policy

ID	Time Interval	Block	Restore Policy	Billing Unit(voice)	Free Quota	Management Quota	Control				
	Condition	Mode(mSIM)	Type	RestoreDay	First(sec)	Others(sec)	Voice(min/count)	SMS(E.A.)	(min)		
0	0	quota based	blocking	daily	n.a.	60	30	60	20	20	<input type="checkbox"/>
<input type="text" value="0"/>	<input type="text" value="n.a."/>	<input type="text" value="quota based"/>	<input type="text" value="non-blocking"/>	<input type="text" value="none"/>	<input type="text" value="0"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="button" value="Delete"/>
<input type="button" value="Add"/>											

SMS Notify

Over Voice Quota

Over SMS Quota

TariffPort & Usage

Port	Tariff Policy	Usage	Reset		
		Voice(sec/count : %)	SMS(count : %)	Management(sec : %)	
					<input type="button" value="All"/>

Management Quota(2/3)

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System +

Basic +

Advanced -

- Port Control
- Mobile PINs
- Mobile USSD
- multi-SIM Manager**
- Multi-SIM Balance
- multi-SIM USSD
- Fax
- Service
- Filtering
- Security
- Radius
- SNMP
- WEB Callback
- Mobile Callback

Miscellaneous -

- Mobile Summary
- System Status
- Mobile Status
- Mobile Port Statistics
- Call Log

Mutli SIM Port Management

Rotation Policy

- Rotation policy should be configured to tariff-based.
- Tariff policy should be configured to quota-based (previous page).

multi-SIM Rotation Policy

ID	Policy	Tariff Policy	Time Interval	Period (10~3600 mins)	Auto Switch Threshold		Control
					CCF (count)	CSCD (count / sec)	
0	tariff-based	0	n.a.	n.a.	15	10 / 10	<input type="checkbox"/>

* CCF(Consecutive Call Fails) * CSCD(Consecutive Short Call Duration)
 * operational status : idle(Idle) active(Act) Blocked (BLK) over period(OP) SIM detached(SD) over quota(OQ/OQ) over CCF (OCF) over CSCD (OSD) SIM operation fail (SOF)
 * Oper.: operational status

- Apply rotation policy and tariff policy to the port.
- Confirm the configured rotation policy and remains.

multi-SIM status

P0:0 0

Port	Oper.	Act	Idle	Idle	Idle	Idle	Idle	Idle	Idle	Rotation ID	Rotation Policy	Remains.	CCF	CSCD
P0:0	Group1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0	quota-based (60 mins)	(3600 secs)	0	0
	Group2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	none	no policy	--		
	Ctrl.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					

Management Quota(3/3)

System +

Basic +

Advanced +

Miscellaneous -

• Mobile Summary

• System Status

• Mobile Status

• Mobile Port Statistics

• Call Log

• System Log

• Ping

• Mobile Band

• BTS Selection

• GSM BTS Info

• [CDMA]Mobile BS Info

• multi-SIM Switch Log

• SIM Traffic Monitor

• Mobile Call Generator

LCR -

• Black & White List

• Time Interval

• Tariff Policy

• LCR Test

Mobile Summary

Usage of Management Quota

Mobile Summary

Port	Mobile Status				Voice Quota		Statistics		Call Info				SMS Info			Management Quota				
	Carrier ID	Register	Signal Strength	SIM no Carrier	Quota (sec)	Remains (sec)	ASR(%)	ACD(sec)	Status	Totals	Success	Con. Fails	Con. Short Dur	Status	TxSuccess	TxTotal	RxTotal	Quota(sec)	Remains(sec)	In(sec/cou)
P0:0/0				0	3600	3600												1200	1200	0/0
P0:0/1				0	3600	3600												1200	1200	-/-
P0:0/2				0	3600	3600												1200	1200	-/-
P0:0/3		UNREG(Searching)	0dB	0	3600	3600	0%	0	Idle	0	0	0	0	idle	0	0	0	1200	1200	-/-
P0:0/4				0	3600	3600												1200	1200	-/-
P0:0/5				0	3600	3600												1200	1200	-/-
P0:0/6				0	3600	3600												1200	1200	-/-
P0:0/7				0	3600	3600												1200	1200	-/-
P0:1/0				0	-1	-1												-1	-1	0/0
P0:1/1				0	-1	-1												-1	-1	-/-
P0:1/2				0	-1	-1												-1	-1	-/-
P0:1/3		UNREG(Searching)	0dB	0	-1	-1	0%	0	Idle	0	0	0	0	idle	0	0	0	-1	-1	-/-
P0:1/4				0	-1	-1												-1	-1	-/-
P0:1/5				0	-1	-1												-1	-1	-/-
P0:1/6				0	-1	-1												-1	-1	-/-
P0:1/7				0	-1	-1												-1	-1	-/-



Thank you!

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