

Managing High Value Telecom Business Services using Service Quality Management

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About this presentation

- Talks about a Strategic Project called 'Univision' - conceived, designed, built, executed and operated by IBM at a Telecom Service Provider in India
- Goals of the Project
- Solution Details (Service Quality Management, NOC consolidation)
- Examples of Critical Business Services managed by this Project

Manage by Service – instead of infrastructure

Managing “infrastructure”

- Large amounts of *uncorrelated* infrastructure data – characterized by high *Volume*, *Variety*, *Velocity*
- Customer care “chases” infrastructure NOCs
- Insight about SLAs and customer experience is “lost in averages”
- Operational cost grows with infrastructure
- High dependence on partner’s efficiency. “Loss of control” on managing customer experience



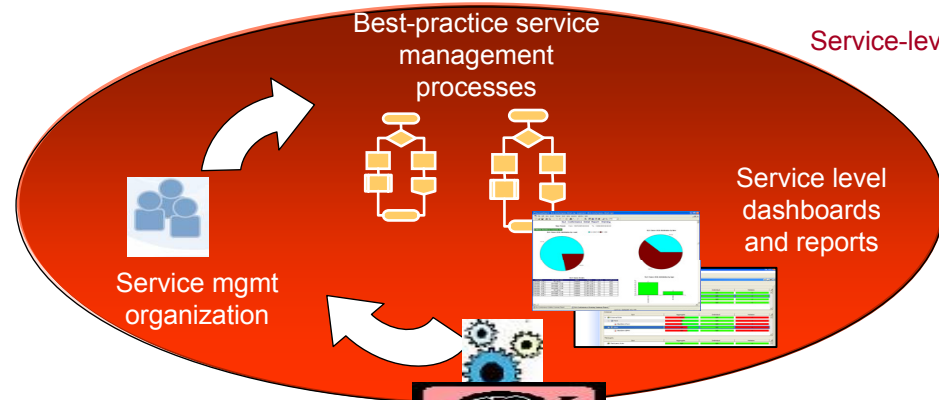
Managing “service”

- Focused, *analyzed* data – deals with root cause, Service Quality, Customer impact
- Customer care is proactively informed about Service and Customer Impact
- “Manage by exception”
- Operational cost becomes largely independent of infrastructure size
- Reduced dependence on partner efficiency, improved partner governance, greater control over managing customer experience

Service Management Vision



Customer care, Account mgrs



SERVICE MANAGEMENT CENTER

Correlation, enrichment



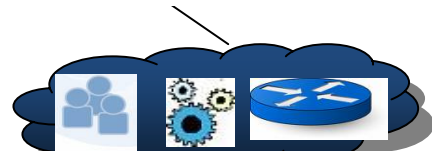
Disparate (potentially partner-managed) processes, tools, data sources and infrastructure
Silo'ed SLAs



Mobility NOC – Partner 1, Partner 2, ...



Optical / IP NOC



VAS NOC



IT NOC

Project: Univision: Goals

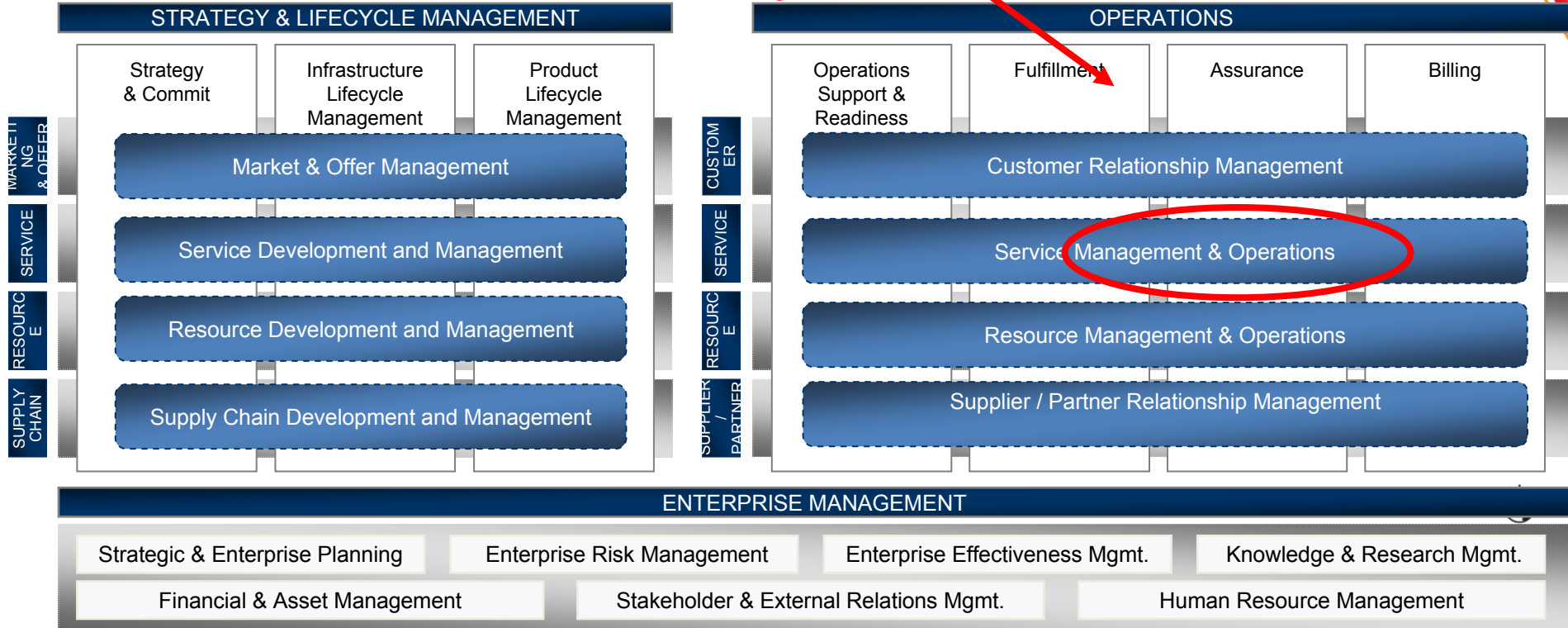
- *Manage key services with a 360-degree view of service health, availability and customer KQIs*
- Enable proactive and reactive functions that will ensure key services provided to the Service Provider's customers are continuously available and conforming to SLA or QoS performance levels
- Scope spans all LoBs of the Service Provider, with 36 Services in scope over a period of 5 years

	Enterprise	Mobility	Telemedia
Blackberry			
GPRS			
Roaming			
Clearchannel			
MPLS VPN			
DSL			
M-Wallet			
Pre-Paid Recharge			
Selfcare and Contact center			



Solution Aligned to eTOM Business Processes

eTOM Business Processes
addressed by IBM Solution





eTOM Business Processes
Facilitated by IBM Solution

OPERATIONS

	Operations Support & Readiness	Fulfillment	Assurance	Billing
CUSTOMER	1.1 CRM Support & Readiness	1.4 Selling 1.3 Marketing Fulfillment Response 1.5 Order Handling	Customer Interface Management 1.6 Problem Handling 1.7 Customer QoS / SLA Management	1.8 Billing & Collections Management
SERVICE	2.1 Service Mgmt. & Operations Support & Readiness	2.2 Service Configuration & Activation	Retention & Loyalty 2.3 Service Problem Management 2.4 Service Quality Management	2.5 Service & Specific Instance Rating
RESOURCE	3.1 Resource Mgmt. & Operations Support & Readiness	3.2 Resource Provisioning	3.3 Resource Trouble Mgt. 3.4 Resource Perform. Mgt. Resource Data Collection & Processing	
SUPPLIER/PARTNER	4.1 S/PRM Support & Readiness	4.2 S/P Requisition Management	4.3 S/P Problem Reporting & Mgt. 4.4 S/P Perform. Mgt. Supplier / Partner Interface Management	4.5 S/P Settlements & Billing Mgt.

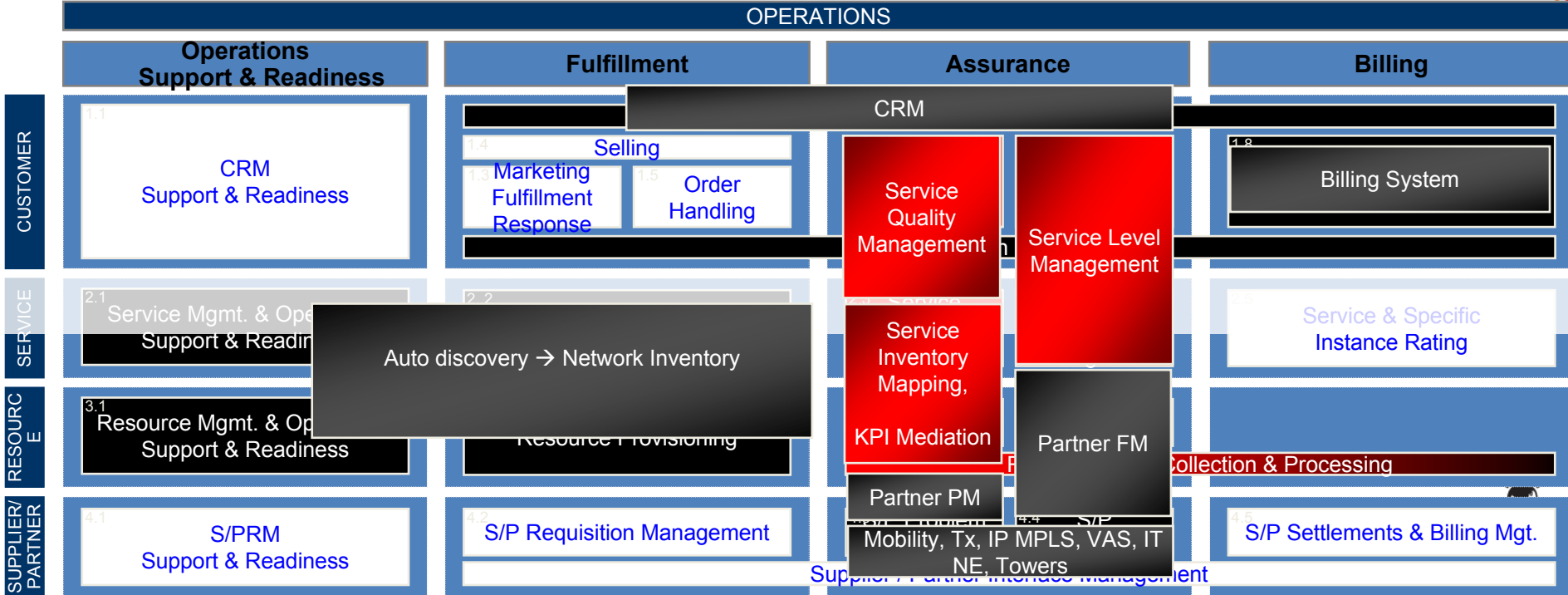


IBM Solution Components to Realize eTOM Business Processes

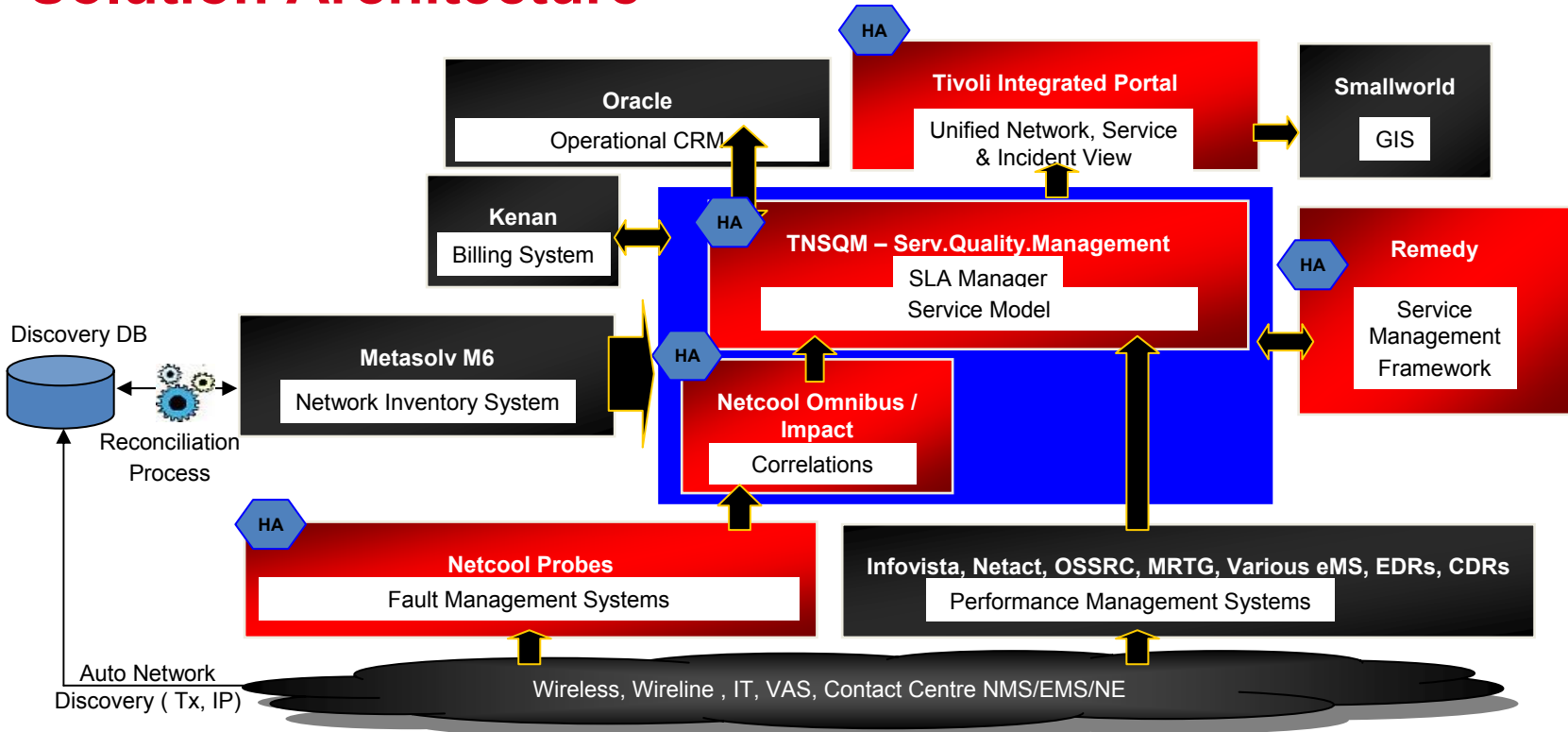


Service Provider's Existing Applications to be Integrated


OPERATIONS



Solution Architecture



 IBM Proposed Solution Components

 Service Provider's Existing Applications to be Integrated

 High Availability Architecture

Univision Integrations ~120 data sources as of today

- **Fault management**
 - HP TeMIP
 - Nokia NetACT
 - Ericsson OSS/RC
 - HP NNM (Retired Now)
 - IBM Tivoli
 - BES
 - Native SNMP
- **Performance management and Service Quality Management**
 - Infovista
 - Tekelec IAS
 - Nokia NetACT
 - Ericsson OSS/RC
 - UTIBA (Pre paid Recharge Application)
 - Comviva - SMSC
 - BES
 - Avaya
 - mWallet (Infosys) – Latest one as of Q1 2012
 - Smart –Trust
 - Juniper B-RAS, Redback, UTStarcom
- **Inventory**
 - Metasolv M6
- **CRM**
 - Oracle
- **TT**
 - HP ServiceDesk
 - Remedy
 - Maximo TSRM
- **Billing**
 - Kenan
- **GIS**
 - GE Smallworld



Illustration International roaming outage, with root cause in optical network

The screenshot displays two overlapping web browser windows. The background window is IBM Tivoli Netcool, showing a 'Filtered Active Event List' for 'Ring_LOS'. The foreground window is Network Manager, displaying a network topology diagram for 'CHN-N01' with several nodes highlighted in red, indicating a network outage.

Filtered Active Event List - Microsoft Internet Explorer

LastOccurrence	Node	AlertKey
5/20/09 5:40:55 PM	CHN_GTL_PV_7250...	S13-1
5/20/09 5:35:02 PM	CHN_I2IE_DOS_A...	S8-1
5/20/09 5:40:55 PM	CHN_GTL_PV_7250...	S12-1
5/20/09 5:34:49 PM	CHN_BTS_07_3250...	S6-1
5/21/09 4:13:24 PM	FORT-VSNL-16X-BR...	STMA
5/20/09 7:28:09 PM	KRL_BTS_BB_7200...	S3-1
5/20/09 12:45:33 PM	MUM_JPMC_MAR_A...	S6-1
5/20/09 11:09:03 PM	BUR_BTS_B2_7140...	S6-1
5/19/09 5:59:09 AM	SMO_BTS_BH_7220...	S6-1
5/20/09 9:42:47 PM	PPT_BCL_TM_3200...	S6-1
5/20/09 12:44:27 PM	MUM_HTL_MD_7120...	S6-1
5/21/09 2:53:32 AM	SRR_BTS_B2_7140...	S6-1

Network Manager - Network Views - Microsoft Internet Explorer

Address: http://10.14.91.161:8080/ncp_topoviz/NetworkView.do?id=3456&selectNode=270630

NMTN > CHN-N01

Network topology diagram showing nodes: CHN_CAW_RL_325033, CHN_SYM_VL_325014, CHN_BILF_FOR_A_N1997, CHN_BTS_07_325034, CHN_I2IE_DOS_A_N1766, and CHN_GTL_PV_725035. Nodes CHN_I2IE_DOS_A_N1766 and CHN_GTL_PV_725035 are highlighted in red.

7 node(s)

Applet com.micromuse.topoviz.venus.NetViewClient started

Local intranet

101

0 rows inserted, 0 rows updated, and 0 rows deleted.

admin 10.14.91.161:8080

Applet com.micromuse.wave.applets.ael.AEL started

Local intranet

SyslogEvents: Total: 0, Highest: Clear

TNSQM: Total: 16532, Highest: Critical

Unknown-Customer: Total: 0, Highest: Clear

start

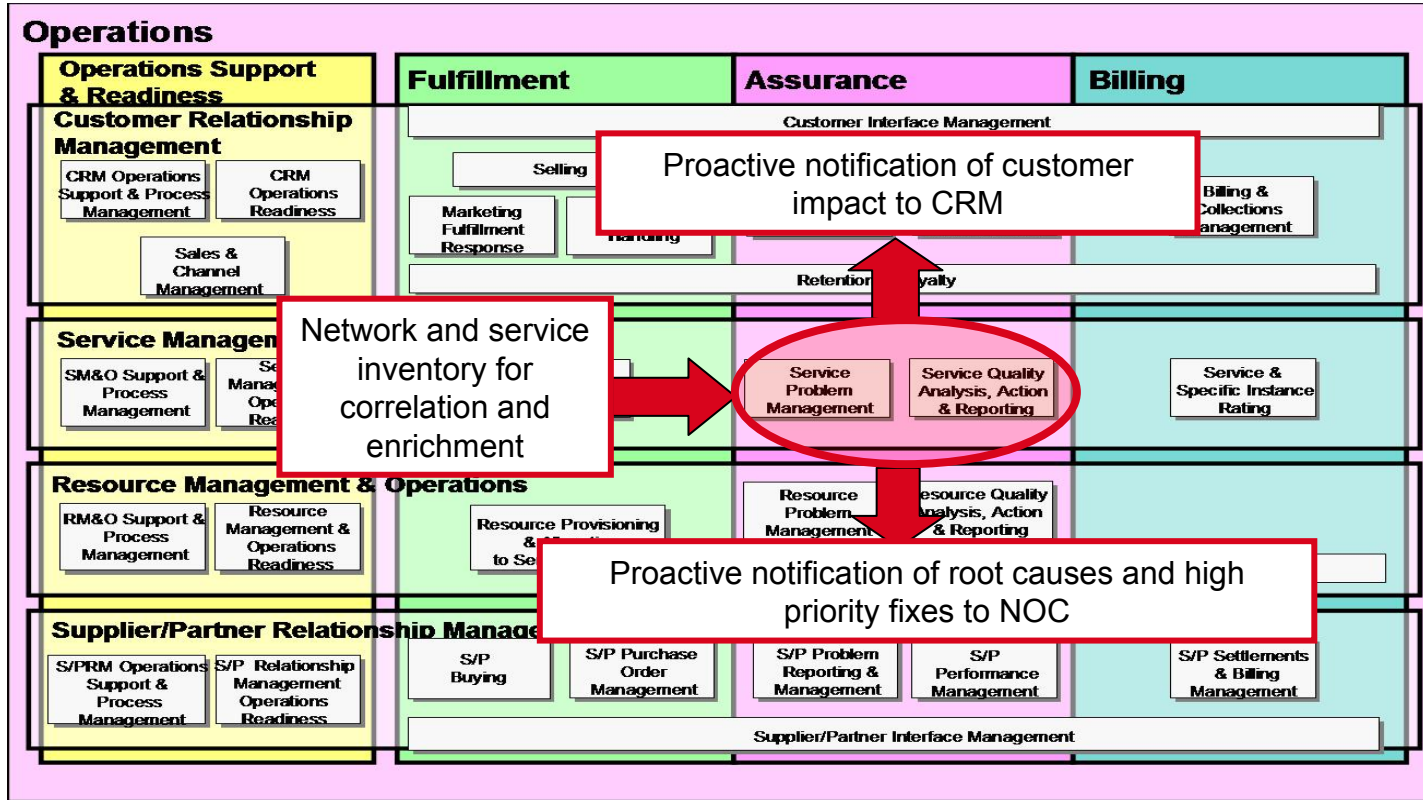
Address

Go (1:16)

4:30 PM Thursday 21-May-09

Client (IST) test

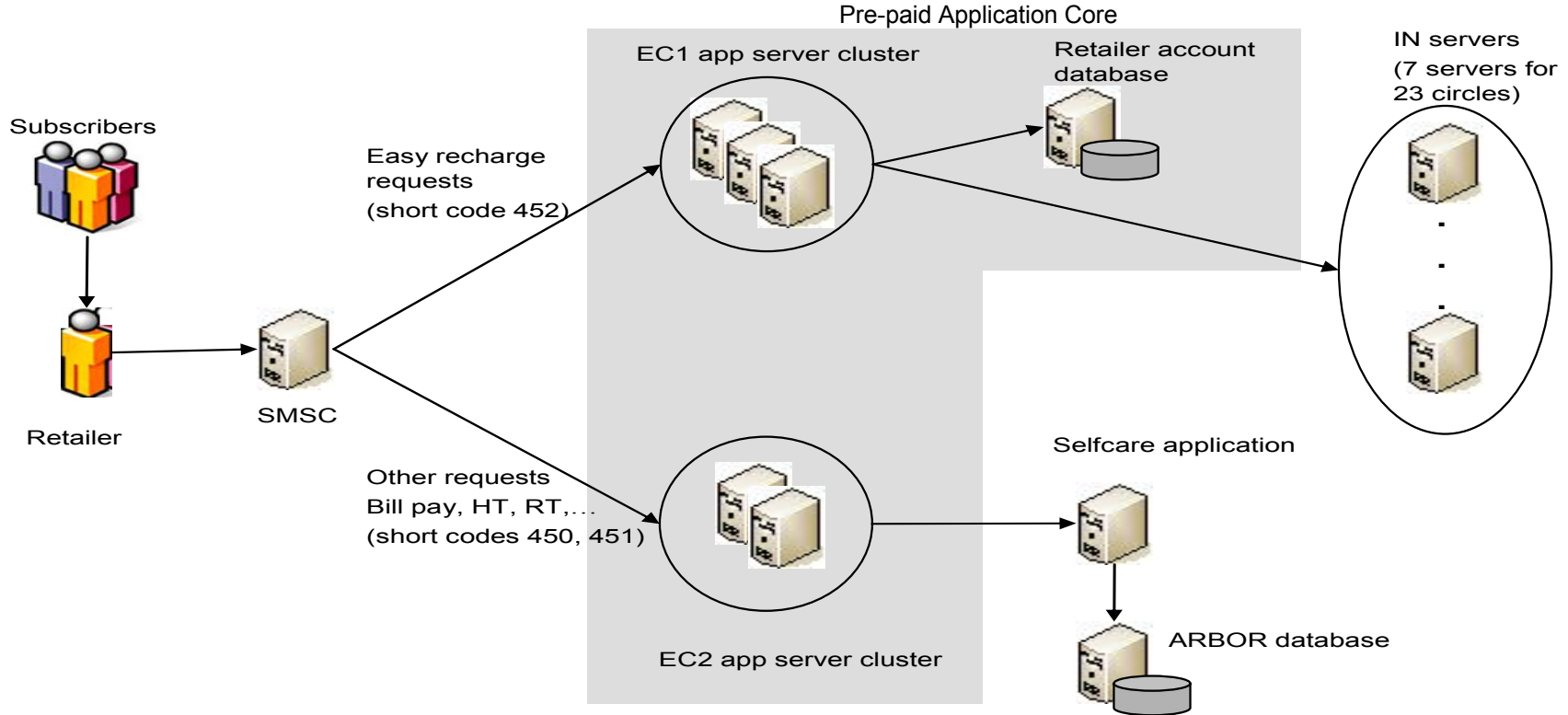
Positioning of Univision Service Management Center



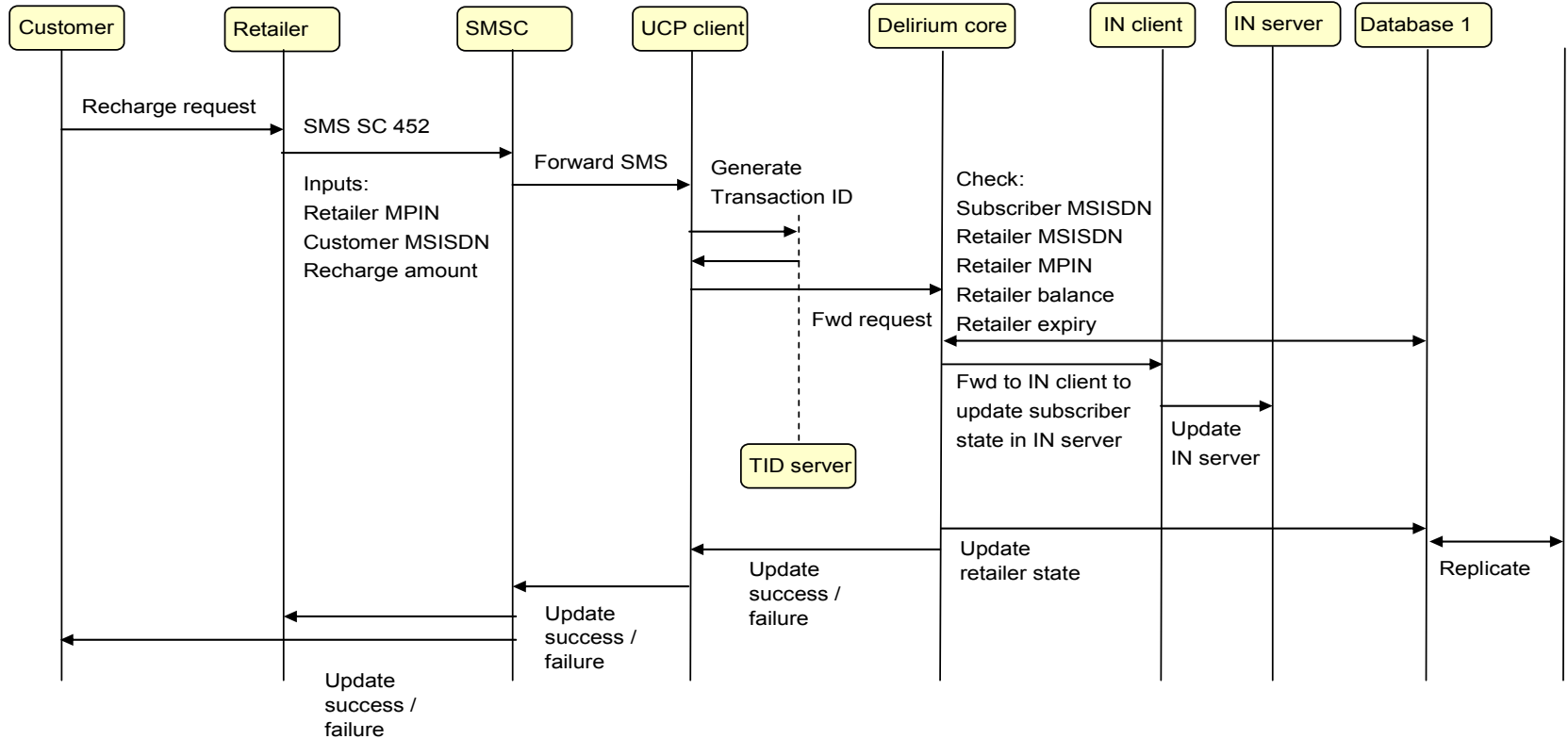
Example 1: Pre Paid Recharge

- **130 Million Subscribers in total**
85% Pre-paid
Top-up is done via Retailers

Pre-paid Delivery Architecture



Pre-paid Recharge flow



TNSQM Implementation of Prepaid Recharge - Monitored Services...

- Recharge
- Balance Check
- Balance Transfer
- DTH Bill Pay
-

TNSQM Performance Indicators

- The following measures are monitored for each service .
 - ATTEMPTS
 - SUCCESSES
 - FAILURES – (Failure cause type, cause code)
 - SUCCESS_RATE
 - LATENCY
 - USAGE (transactions per sec)
 - % of all successful transactions complete within 6 seconds and 60 seconds.

Pre-paid Service Model Views

Metrics are measured, viewed and controlled (Threshold Alerts) on several dimensions

- Zone/Hub (North, East, South...)
- PLMN (Circle A ,Circle B ...)
- Class of Applications (All Cores, All Ins, All SELFCARE apps...)
- Individual Sub-Component (e.g. Instance 7 of IN server in EAST Hub...)

All metrics (success rate, failure cause code, type) are available to the application instance level.



Mumbai Recharge SLA

SLA Monitor - Service Quality Manager Client

File View Actions Add-Ins Window Help

Exit Client Online Help Discover SLAs Report Event Log Find Services

Monitoring

- SLA Monitor
- KQI Analyzer
- Alarm Monitor

SLA Provisioning

SQM Provisioning

Auditing

LAPU_RECHARGE_MUMBAI (Individual clauses)

Configuration

Model name	Resource name	Individual	Condition	Start time	End time
Individual clauses		0/7			
LAPU_RECHARGE		0/6			
RECHARGE ATTEMPTS	[India_Airtel_Mumbai,AllComponents,AllSubComponents]	9,585		Dec 10, 11:45 IST	Dec 10, 12:00 IST
RECHARGE SUCCESSES	[India_Airtel_Mumbai,AllComponents,AllSubComponents]	9,424		Dec 10, 11:45 IST	Dec 10, 12:00 IST
RECHARGE FAILURES	[India_Airtel_Mumbai,AllComponents,AllSubComponents,AllFailures]	161		Dec 10, 11:45 IST	Dec 10, 12:00 IST
RECHARGE SUCCESS RATE	[India_Airtel_Mumbai,AllComponents,AllSubComponents]	98.32		Dec 10, 11:45 IST	Dec 10, 12:00 IST
RECHARGE LATENCY	[India_Airtel_Mumbai,AllComponents,AllSubComponents]	0.088		Dec 10, 11:45 IST	Dec 10, 12:00 IST
RECHARGE USAGE	[India_Airtel_Mumbai,AllComponents,AllSubComponents]	10.65		Dec 10, 11:45 IST	Dec 10, 12:00 IST
LAPU_PLMN_E2E_RECHARGE		0/1			
PLMN E2E RECHARGE ATTEMPTS	[LAPU_WEST,India_Airtel_Mumbai]	3,215		Dec 10, 11:45 IST	Dec 10, 12:00 IST

Client (IST) Close

Client (IST) bharti01

Mumbai Recharge Component Level Drill Down View

SLA Monitor - Service Quality Manager Client

File View Actions Add-Ins Window Help

Exit Client Online Help Discover SLAs Report Event Log Find Services

Monitoring

- SLA Monitor
- KQI Analyzer
- Alarm Monitor

SLA Provisioning

SQM Provisioning

Auditing

Drilldown: RECHARGE_SUCCESS_RATE India_Airtel_Mumbai AllComponents AllSubComponents (Dec 10, 11:45 IST)

Up Down

Configuration

Drilldown

KQI hierarchy	Resource name	Value	Start time	End time
RECHARGE SUCCESS RATE	[India_Airtel_Mumbai,AllComponents,AllSubComponents]	98.32	Dec 10, 11:45 IST	Dec 10, 12:00 IST
RECHARGE SUCCESS RATE	[India_Airtel_Mumbai,AllComponents,AllSubComponents]	98.32	Dec 10, 11:45 IST	Dec 10, 12:00 IST
RECHARGE SUCCESS RATE	[India_Airtel_Mumbai,CORE,AllSubComponents]	97.39	Dec 10, 11:45 IST	Dec 10, 12:00 IST
RECHARGE SUCCESS RATE	[India_Airtel_Mumbai,CORE,AllSubComponents]	97.39	Dec 10, 11:45 IST	Dec 10, 12:00 IST
RECHARGE SUCCESS RATE	[India_Airtel_Mumbai,CORE,WEST_CORE_2]	96.69	Dec 10, 11:45 IST	Dec 10, 12:00 IST
RECHARGE SUCCESS RATE	[India_Airtel_Mumbai,CORE,NORTH_CORE_3]	100	Dec 10, 11:45 IST	Dec 10, 12:00 IST
RECHARGE SUCCESS RATE	[India_Airtel_Mumbai,CORE,SOUTH_CORE_2]	100	Dec 10, 11:45 IST	Dec 10, 12:00 IST
RECHARGE SUCCESS RATE	[India_Airtel_Mumbai,CORE,WEST_CORE_1]	97.17	Dec 10, 11:45 IST	Dec 10, 12:00 IST
RECHARGE SUCCESS RATE	[India_Airtel_Mumbai,CORE,WEST_CORE_3]	98.12	Dec 10, 11:45 IST	Dec 10, 12:00 IST
RECHARGE SUCCESS RATE	[India_Airtel_Mumbai,IN,AllSubComponents]	97.55	Dec 10, 11:45 IST	Dec 10, 12:00 IST
RECHARGE SUCCESS RATE	[India_Airtel_Mumbai,DB,AllSubComponents]	100	Dec 10, 11:45 IST	Dec 10, 12:00 IST

Drill down complete

Client (IST)

Close

SLA Monitor LAPU_RECHARG... Drilldown: RECH...

Client (IST) bharti01

Mumbai Recharge Failures Component Level Drill Down View

SLA Monitor - Service Quality Manager Client

File View Actions Add-Ins Window Help

Exit Client Online Help Discover SLAs Report Event Log Find Services

Monitoring

SLA Monitor

KQI Analyzer

Alarm Monitor

SLA Provisioning

SQM Provisioning

Auditing

Drilldown: RECHARGE_FAILURES India_Airtel_Mumbai AllComponents AllSubComponents AllFailures (Dec 10, 11:45 IST)

Up Down

Configuration

Drilldown

KQI hierarchy	Resource name	Value	Start time	End time
RECHARGE FAILURES	[India_Airtel_Mumbai,AllComponents,AllSubComponents,AllFailures]	161	Dec 10, 11:45 IST	Dec 10, 12:00 IST
RECHARGE FAILURES	[India_Airtel_Mumbai,AllComponents,AllSubComponents,AllFailures]	161	Dec 10, 11:45 IST	Dec 10, 12:00 IST
RECHARGE FAILURES	[India_Airtel_Mumbai,CORE,AllSubComponents,AllFailures]	84	Dec 10, 11:45 IST	Dec 10, 12:00 IST
RECHARGE FAILURES	[India_Airtel_Mumbai,CORE,AllSubComponents,AllFailures]	84	Dec 10, 11:45 IST	Dec 10, 12:00 IST
RECHARGE FAILURES	[India_Airtel_Mumbai,CORE,WEST_CORE_1,AllFailures]	33	Dec 10, 11:45 IST	Dec 10, 12:00 IST
RECHARGE FAILURES	[India_Airtel_Mumbai,CORE,WEST_CORE_1,AllFailures]	33	Dec 10, 11:45 IST	Dec 10, 12:00 IST
RECHARGE FAILURES	[India_Airtel_Mumbai,CORE,WEST_CORE_1,CATEGORY:UserInputError]	33	Dec 10, 11:45 IST	Dec 10, 12:00 IST
RECHARGE FAILURES	[India_Airtel_Mumbai,CORE,WEST_CORE_1,CATEGORY:UserInputError]	33	Dec 10, 11:45 IST	Dec 10, 12:00 IST
RECHARGE FAILURES	[India_Airtel_Mumbai,CORE,WEST_CORE_1,AuthBadPassword]	9	Dec 10, 11:45 IST	Dec 10, 12:00 IST
RECHARGE FAILURES	[India_Airtel_Mumbai,CORE,WEST_CORE_1,InsufficientFunds]	9	Dec 10, 11:45 IST	Dec 10, 12:00 IST
RECHARGE FAILURES	[India_Airtel_Mumbai,CORE,WEST_CORE_1,MsisdnNotInRange]	12	Dec 10, 11:45 IST	Dec 10, 12:00 IST
RECHARGE FAILURES	[India_Airtel_Mumbai,CORE,WEST_CORE_1,NotAgent]	3	Dec 10, 11:45 IST	Dec 10, 12:00 IST
RECHARGE FAILURES	[India_Airtel_Mumbai,CORE,WEST_CORE_3,AllFailures]	22	Dec 10, 11:45 IST	Dec 10, 12:00 IST
RECHARGE FAILURES	[India_Airtel_Mumbai,CORE,WEST_CORE_2,AllFailures]	29	Dec 10, 11:45 IST	Dec 10, 12:00 IST
RECHARGE FAILURES	[India_Airtel_Mumbai,IN,AllSubComponents,AllFailures]	77	Dec 10, 11:45 IST	Dec 10, 12:00 IST

Drill down complete

Client (IST) Close

SLA Monitor LAPU_RECHARG... Drilldown: RECH...

Client (IST) bharti01

Mumbai Recharge Failures Component Level Drill Down View..2

SLA Monitor - Service Quality Manager Client

File View Actions Add-Ins Window Help

Exit Client Online Help Discover SLAs Report Event Log Find Services

Monitoring

SLA Monitor

KQI Analyzer

Alarm Monitor

SLA Provisioning

SQM Provisioning

Auditing

Drilldown: RECHARGE_FAILURES India_Airtel_Mumbai AllComponents AllSubComponents AllFailures (Dec 10, 11:45 IST)

Up Down

Configuration

Drilldown

KQI hierarchy	Resource name	Value	Start time	End time
RECHARGE FAILURES	[India_Airtel_Mumbai,AllComponents,AllSubComponents,AllFailures]	161	Dec 10, 11:45 IST	Dec 10, 12:00 IST
RECHARGE FAILURES	[India_Airtel_Mumbai,AllComponents,AllSubComponents,AllFailures]	161	Dec 10, 11:45 IST	Dec 10, 12:00 IST
RECHARGE FAILURES	[India_Airtel_Mumbai,CORE,AllSubComponents,AllFailures]	84	Dec 10, 11:45 IST	Dec 10, 12:00 IST
RECHARGE FAILURES	[India_Airtel_Mumbai,IN,AllSubComponents,AllFailures]	77	Dec 10, 11:45 IST	Dec 10, 12:00 IST
RECHARGE FAILURES	[India_Airtel_Mumbai,IN,AllSubComponents,AllFailures]	77	Dec 10, 11:45 IST	Dec 10, 12:00 IST
RECHARGE FAILURES	[India_Airtel_Mumbai,IN,WEST_IN_9,AllFailures]	1	Dec 10, 11:45 IST	Dec 10, 12:00 IST
RECHARGE FAILURES	[India_Airtel_Mumbai,IN,WEST_IN_8,AllFailures]	1	Dec 10, 11:45 IST	Dec 10, 12:00 IST
RECHARGE FAILURES	[India_Airtel_Mumbai,IN,WEST_IN_6,AllFailures]	1	Dec 10, 11:45 IST	Dec 10, 12:00 IST
RECHARGE FAILURES	[India_Airtel_Mumbai,IN,WEST_IN_10,AllFailures]	3	Dec 10, 11:45 IST	Dec 10, 12:00 IST
RECHARGE FAILURES	[India_Airtel_Mumbai,IN,WEST_IN_4,AllFailures]	53	Dec 10, 11:45 IST	Dec 10, 12:00 IST
RECHARGE FAILURES	[India_Airtel_Mumbai,IN,WEST_IN_4,AllFailures]	53	Dec 10, 11:45 IST	Dec 10, 12:00 IST
RECHARGE FAILURES	[India_Airtel_Mumbai,IN,WEST_IN_4,CATEGORY:OtherError]	53	Dec 10, 11:45 IST	Dec 10, 12:00 IST
RECHARGE FAILURES	[India_Airtel_Mumbai,IN,WEST_IN_4,CATEGORY:OtherError]	53	Dec 10, 11:45 IST	Dec 10, 12:00 IST
RECHARGE FAILURES	[India_Airtel_Mumbai,IN,WEST_IN_4,OtherError]	53	Dec 10, 11:45 IST	Dec 10, 12:00 IST
RECHARGE FAILURES	[India_Airtel_Mumbai,IN,WEST_IN_1,AllFailures]	1	Dec 10, 11:45 IST	Dec 10, 12:00 IST
RECHARGE FAILURES	[India_Airtel_Mumbai,IN,NORTH_IN_4,AllFailures]	1	Dec 10, 11:45 IST	Dec 10, 12:00 IST
RECHARGE FAILURES	[India_Airtel_Mumbai,IN,WEST_IN_11,AllFailures]	13	Dec 10, 11:45 IST	Dec 10, 12:00 IST
RECHARGE FAILURES	[India_Airtel_Mumbai,IN,WEST_IN_7,AllFailures]	1	Dec 10, 11:45 IST	Dec 10, 12:00 IST
RECHARGE FAILURES	[India_Airtel_Mumbai,IN,SOUTH_IN_4,AllFailures]	2	Dec 10, 11:45 IST	Dec 10, 12:00 IST

Drill down complete

Client (IST)

Close

SLA Monitor LAPU_RECHARG... Drilldown: RECH...

Client (IST) bharti01

Benefits

- **Reducing time to diagnose problems significantly.** Able to pin point the problem domain area (E.g. SMSC, LAPU or IN server)
 - More accurate end-to-end view of the service quality needed to improve the customer experience
 - To perform root cause analysis (RCA) through guided drill-down by creating Combined KQI (Latency, accessibility and etc) from different data sources.
- **Revenue leakage**
 - Handling exceptional cases where multiple recharge is sent as a result of SMS delivery failure
- **Able to generate violation at Subscriber/Retailer level** by taking the CDR transactional records from SMSC
 - Wrong Password reset
 - Balance low notifications



Thank you, I hope this was time well spent

- Q&A
- Feedback
- Let's catch up offline too!

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