RealTime OSS BigData with SAP Convergent Mediation

Tangi Lemoine
The new Customer Experience Assurance

40% of customers that leave their current provider do so because of service issues

Source: Analysis Mason, Mobile Assurance Whitepaper, Aug 2014.
Who is DigitalRoute

Over **14 years**
in Business as
technology
provider for data integration

Global presence with
HQ in **Stockholm**

More than **320**
customers (mostly telco), through OEM and Direct

170 employees
world wide and growing

2013: 28 New Customers
DigitalRoute Proof Points

AWARDS 2012 - 2013

AWARDS 2014
“SAP Convergent Mediation will allow our customers to rapidly address new business requirements and opportunities,” said Jens Amail, senior vice president, Telecommunications, SAP. “Working with DigitalRoute to provide out-of-the-box integration with SAP Convergent Charging for transaction rating and charging allows us to support the billing requirements for new Telco 2.0 services and rapidly evolving customer demands without the need for expensive, time-consuming customization.”
SAP Convergent Mediation - What is it about?

**Data Sources**
- Databases
- Metering Systems
- Messaging Queues
- Software
- Files
- Devices and Network Elements
- Probes

**Data Consumers**
- SAP Convergent Charging
- SAP Hana
- SAP Sybase IQ
- Hadoop
- Non SAP software
- IT Systems
- DWH / DB
- ...

**SAP Convergent Mediation**
- Uni- and Bi-directional communication
- Data Acquisition (Batch and Real-time)
- Data Validation
- Normalization
- Classification
- Aggregation/Correlation
- Enrichment
- Data Cleansing
- Mapping Protocols and Formats
- CEP
- Policy Control
- Anonimization
- Usage Management
- GUI and API exposures
A Testimony @ Sapphire

Mediation helped me decrease my CAPEX by 20% year on year

- One platform to collect batch and real time cross services
- OPEX savings
  - Convergent mediation: few people to maintain and 1 license/vendor for OSS and BSS
  - Commodity infrastructure
- Facts
  - 2 years in a row Y+1 CAPEX decreased by 20 %
  - Savings in real-time workflows implementation: from 200 md to 75 md
SAP Convergent Mediation in short

Experiance Management

Subscriber eligibility monitoring

Eligibility events

Data usage events

Subscriber data usage monitoring

Data Usage Billing

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The BigData Iceberg
From past to present to predict future

What is my **history**?
Where am I?
What is my **current** experience?

Internal & External Feedback
Customer Experience Assurance: Bridging OSS and BSS Data

Network Profiling

Cross Network summary: KPI (call attempts, volume of data exchanged, setup fail rate) cross network, distribution per antenna type, per region...

Crowd/Event summary - per group of cell: volume (per RAT), device based distribution...

Customer Profiling

Customer summary: setup fail rate voice and data, drop rate voice and data, volume of data exchanged, max throughput, last known location...

Predictive Maintenance

Device summary: performance breakdown per device/version, list of users from given device...

Product Recommendation

360° Customer View

Propensity to Churn

Personalized Care

BSS and OSS Analytics Layer

OSS Data Preparation Layer

OSS Source Layer
SAP Convergent Mediation in the Hana Stack for Real Time, High Volume & Telco
Customer Experience Assurance
OSS Data Challenges

Data must be correlated in real time.
The control plane must be linked to User plane records.
Multiple Network Data Records needs to be merged from a customer perspective to create a unified Customer Service Performance Record.
Data must be enriched with location information.
State needs to be kept to understand who is where when a negative impact occurs.

Multiple interfaces to be monitored in real time
High volume, with up to 95% signaling “noise”
To follow a subscriber/IMSI is not trivial

SAP Convergent Mediation layer
SAP Hana Platform layer
Sample Views of Data

The following section highlights some views created from live data. It was just meant for demonstration purpose.
Using the MSC data, information can be derived about consumption patterns (without the data being filtered by billing for example).

As the data is not aggregated, the same view can be used:
- Over the whole network, for high level view
- For a given Cell Tower (filtering by LAC and Cell Id) to study consumption patterns at a given location
- Or for a given customer (using MSISDN), and later linked to a campaign scenario, a predictive analytics study...
Using the MSC data, information can be derived about consumption patterns – here, details are shown on minutes consumption (incoming/outgoing) or destination CC but any fields can be used.

As the data is not aggregated, it can be later filtered by customer or presented with any computation on the fly (sum, average, min, max...).
Using the SGSN data, information can be derived about consumption patterns.

Information about the traffic is split over time – using the byte downloaded and uploaded for example. As no aggregation is used, it can be rearranged per customer, per cell…

The throughput is computed dynamically using an approximation with partial sessions for which cause for closing indicated by SGSN was the ones for which the volume exceeded the quota set. This can obviously change depending on the type of data that the Iu-PS interface is able to produce…
One of the most important data that can be captured is information about the “bad experience”, i.e.:

- **Voice**: looking at the status field of MSC records for non normal release call (stable Call Abnormal Termination for example which would indicate a dropped call)
- **Data**: Looking at the cause for closing and/or diagnostic reason of the SGSN, which would indicate a dropped data session

The same data can be filtered by cell tower to identify a given network problem, or by customer / group of customer to later be able to be proactive for customer communication (better campaigns, better customer service…).
The same data can be used to pinpoint in a summary the customers having the worst experience and/or the more troublesome cell locations in the network.
Consumption/Quality Experience Dashboard Mix with Location

As location data (reference table Cell ID + LAC ↔ GPS Tower Location as well as CellID + LAC present in all records) is available, the following dashboards are also possible:

Plot the quality and/or consumption indicators of the previous dashboards in a summarized view on the map over time – from number of sessions at given locations to cells having problems.

Customer Location information - show over a map, for a given customer a heatmap of where the customer was over time.

Note: this is better shown if information about periodic location update is available.

Under construction
Consumption/Quality Experience Dashboard Mix with Location

As location data (reference table Cell ID + LAC $\leftrightarrow$ GPS Tower Location as well as CellID + LAC present in all records) is available, the following dashboards are also possible:

Other views of the networks: coverage, positioning of the cell tower…mixed with the number of subscriber.
SAP Customer Insight 365
Monetization enabled by SAP Convergent Mediation

Anonymized data: usage, location, devices…

Shared Hana Database

Crowd Analysis

Marketing teams in big brands

Telecommunication Companies

Telecommunication Provider
Why SAP Convergent Mediation for SAP Telco BigData?

The solution to Acquire and Prepare Telecommunication Network data in Real Time in SAP

<table>
<thead>
<tr>
<th>Business</th>
<th>Technical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Referencable</td>
<td>300+ Telco reference, from Tier 3 to Tier 1 all over the world</td>
</tr>
<tr>
<td>Expert</td>
<td>Team available to support you with deep telecommunication expertise</td>
</tr>
<tr>
<td>SAP oriented</td>
<td>SAP Solution extension, SAP paper contract, SAP support</td>
</tr>
<tr>
<td>Independent</td>
<td>Connect to any network provider and any probe</td>
</tr>
<tr>
<td>Connectable</td>
<td>Rich set of telco specialized adaptors, easing the connection to different telco sources (probes, network elements, IT System)</td>
</tr>
<tr>
<td>Connectable</td>
<td>Ready made connector to SAP Hana and SAP Sybase IQ</td>
</tr>
<tr>
<td>Scalable</td>
<td>References from few hundred thousand events per day to 2,2 million events per seconds</td>
</tr>
<tr>
<td>Cost Effective</td>
<td>No hardware dependency, vertical scalability, low TCO.</td>
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<tr>
<td>Easy</td>
<td>Graphical based Solution, self-sufficiency oriented</td>
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Thank You!

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