Use Case: Service Aggregation

Service Aggregation of Telecommunications Services

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Service Aggregator Use Case

Telecommunications Industry Context

◊ Telefonica (TID)
◊ A1 Telekom Austria (A1TA)

Market Opportunity

• aggregation of electronic web services to form new bundled product offerings
• quality of service (QoS) of aggregations forms the key market differentiator
• such bundles cover heterogenous technical domains, making SLA management for such QoS difficult, often relying on ad-hoc methods

Applications

• Multi-party voice calls (Conference)
• Voice mail
• Interactive Voice Response (IVR)

Voice

• VoIP
• Fixed-line
• Mobile

Messaging

SMS, MMS

Email
## Telecommunication Services

<table>
<thead>
<tr>
<th>Category</th>
<th>Service</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voice</td>
<td>VoIP</td>
<td>Voice communications over internet protocol</td>
</tr>
<tr>
<td></td>
<td>Fixed-line</td>
<td>Voice communications over traditional analog fixed line connections</td>
</tr>
<tr>
<td></td>
<td>Mobile</td>
<td>Voice communication over radio based networks such as GSM or UTMS</td>
</tr>
<tr>
<td>Messaging</td>
<td>SMS</td>
<td>Short messaging text messages originally intended for GSM based networks</td>
</tr>
<tr>
<td></td>
<td>MMS</td>
<td>Multi-media messages incorporating text, images, movies, and possibly sound</td>
</tr>
<tr>
<td></td>
<td>Email</td>
<td>A standard for messaging layered on internet protocol networks</td>
</tr>
<tr>
<td>Applications</td>
<td>Multi-party voice calls</td>
<td>The aggregation of voice calls with more than two endpoints (i.e. conference bridge)</td>
</tr>
<tr>
<td></td>
<td>Voice mail</td>
<td>A service that answers a voice call, recording an audio message for subsequent playback</td>
</tr>
<tr>
<td></td>
<td>Interactive Voice Response</td>
<td>The use of DTMF message tones to guide a voice call through a series of messages or possible conference calls</td>
</tr>
</tbody>
</table>
Service Aggregator

Management
- wholesale relationships form prime motivation in our approach

Two Scenarios
- telecommunciations company (Telefónica) offering third party services
- telecommunciations company (A1 Telekom Austria) providing Telecommunciations as a Service (TaaS) platform which hosts external entity’s service aggregations
Architecture

- multi-provider
- business and technical relationships
- incorporate telco capabilities in SLA framework
Business Motivations

- New business environments based on Service Delivery Platforms allows a “win/win” situation for both Telco Service Providers and Infrastructure Service Providers
- Telecommunications Service Providers have few services with high availability and high guarantee terms. They will be more than a “carrier” or the pipe
- Service Aggregator environments allows Time-To-Market reduction and revenues increase, exploring new market niches and new services
- Optimization of efficient use of internal resources based on customer demand
- Delivery of products with guarantee terms automatically associated with the SLA
A1TA Scenario

Telecommunications as a Service

• create a wholesale Service Delivery Platform that encapsulates telco services (voice, SMS, applications) as electronic web services (REST-based)
  ◊ part encapsulation of existing telco service as web service
  ◊ part software module for controlling these services
• create a compute cloud for hosting external service aggregation applications (Platform as a Service)
• enables SLA management across the combined vertical stack

Initial Prototype Scenario

• an external company (Acme Aggregator) creates collaboration tools aggregating
  ◊ voice service (from TaaS)
  ◊ shared whiteboard (software application)
• this aggregation is sold to multiple customers
• managed on multi-tenant TaaS container provided by A1TA
A1TA Architecture

Telecommunications as a Service
Service Delivery Platform

Telecommunication Infrastructure

Compute Infrastructure

Service Aggregator

SLA

SDP

Software
(Telco As A Service)

Infrastructure
## A1TA Business Evaluation

<table>
<thead>
<tr>
<th>Value Dial</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reliability of Aggregate Service</td>
<td>Availability expressed a percentage of time service is available</td>
</tr>
<tr>
<td></td>
<td>Average time for service restoration of failure</td>
</tr>
<tr>
<td>Service Efficiency</td>
<td>Percentage utilization of compute infrastructure</td>
</tr>
<tr>
<td>Infrastructure Utilization</td>
<td>Volume of phone calls made per wholesale relationship</td>
</tr>
<tr>
<td>Multi-party Monitoring</td>
<td>Person months (PMs) it takes to establish a multi-party monitoring solution</td>
</tr>
<tr>
<td>Agility</td>
<td>Average time to provision a service</td>
</tr>
<tr>
<td></td>
<td>Average time to modify a service</td>
</tr>
</tbody>
</table>
General overview

Actors

- Bank/SME => Customer
- IT Manager (End user) => The bank IT administrator who finally use the whole service
- Telco Provider => Telefonica capabilities like SMS, eMail, VOIP, etc.
- IaaS Provider => Third party company that provides the infrastructure
- Service Aggregator => He creates the bundle of services based on Telco + IaaS

The Story

- Telco service aggregator offer to the customer (Bank or SME), an integrated product that includes Telco services (SMS messaging) and infrastructure services (IaaS) with a determinate SLA
- Telco service aggregator has his own Telco Services and Infrastructure Services
- Telco service aggregator has agreements (SLA) with other Telco and Infrastructure Provider in order to use their services
<table>
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<th>Value Dial</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Customer satisfaction</td>
<td>Rate of claims per customer % reduction (elimination to zero) of undetected SLA violations</td>
</tr>
<tr>
<td>Dependability</td>
<td>Availability (% of the time the service is available, ej. 99,99%) Mean time to recover from an SLA breach (in seconds)</td>
</tr>
<tr>
<td>End2End manageability</td>
<td>rate of monitored atomic services per total number of atomic services</td>
</tr>
<tr>
<td>Fast decision making</td>
<td>% of automatic penalties adjusted</td>
</tr>
<tr>
<td>Agility</td>
<td>average time to provision a service average time to modify a service</td>
</tr>
<tr>
<td>Operational Efficiency</td>
<td>Opex associated to platform management</td>
</tr>
<tr>
<td>Energy Efficiency</td>
<td>Energy Consumption kW/hr Energy Savings</td>
</tr>
</tbody>
</table>
Thank you!