Services Exploiting SOA and Web Service Technology in Modern Telcos

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Aepona
Web 2.0 -> Telco 2.0

3rd Party Applications
Communications Enabled Business Processes

Web 2.0 (examples)

Telco 2.0

programmable Telco

SS7, SSIP, MICS, HLRs, MLCs, SMScs, MMSCs, CSCFs, etc.

Network Capabilities

Charging

Subscribers
What Value Added Assets does the Telco Have?

- Webcos
- Enterprises

Service Enablers:
- Payments
- Messaging
- Subscriber Info
- Call & Conference (multi-media)
- Bandwidth
- Presence
- Location
What Is Needed to Exploit Value Added Service Enablers?

Webcos

Enterprises

Application Network Interface (controlled)

Payments

Messaging

Subscriber Info

Call & Conference (multi-media)

Bandwidth

Presence

Location

programmable

Telco Insertion into the Value Chain - Communications Enabled Business Processes
Three ‘killer’ capabilities

- Contextual presence, location, etc
  - Dynamic

- Flexible media and conference switching
  - Calls, video, etc

- Intelligent notification services
  - Multiple communications channels
    - Voice, SMS, email, etc

AND

- Subscriber
  - Payments/charging
  - Information
Web services are the modern standard for development of distributed user applications

- Use of web services consistent with IT world
- SOAP/XML based realisation of an SOA
  - Service Oriented Architecture
- Basis for web 2.0

Web Service benefits

- Flexibility
- Simplicity
- Industry Support
- Powerful tooling available

Standard Telecom Web Services

- 3GPP / 3GPP2 standards
- 3GPP TS 29.199
  - known as Parlay-X
- Adopted by OMA & GSMA
- Hide telecoms complexity

A set of Web Services, which provide secure, high level access to widely used telecommunications functions
1. Common definitions
2. Third party call
3. Call Notification
4. Short Messaging
5. Multimedia Messaging
6. Payment
7. Account management
8. Terminal Status
9. Terminal location
10. Call handling
11. Audio call
12. Multimedia conference
13. Address list management
14. Subscriber Presence
15. Message Broadcast
16. Geo-coding
17. Application-driven Quality of Service (QoS)
18. Device Capabilities and Configuration
19. Multi-Media Streaming Control
20. Multi-Media Multi-Cast Control

Exploiting Network Capabilities

More being defined

Standards continually enhanced by 3GPP/OMA as requirements for standard web services are identified.

Real use cases are identifying granularity and enhancement requirements.
### Telecom Web Services Exploitation Categories

#### EXAMPLES

**Enterprise / Public Sector**

- **Communications (Telco) Enhanced Business Processes**
  - Workflow Management
  - Logistics & Assets management
  - Address book click-to-dial etc

- **Advertising / Marketing**
  - Providing branded Widgets to increase reach & improve lead generation
  - Targeted campaigns with high-value “click-to-action” calls

- **Voice 2.0 Services**
  - Adding value to existing voice services, such as context-aware call routing

- **Professional, Healthcare, Delivery, Maintenance, etc**
  - Automated appointment reminders with call-back

**Consumer / Web 2.0**

- **Social Networking**
  - Adding real-time communications features
  - Adding context-awareness (location, presence)
  - Anonymous calling

- **Location-based services**
  - Family / friends locator
    - Child security is a growing service
  - Services finder
  - Promotions

- **Long Tail / Web 2.0 applications**
  - Network as a Service
  - Many application categories
    - From widgets to community-based services
    - Meeting local needs
  - 1000s of applications
    - Sprint has 500 ASPs using its APIs
Example - Appointment Notification

Computer to Person Communications

- Automated appointment reminder
  - E.g. dentists, opticians, consultants, etc

1. Record appointment
2. Day before appointment.
3. SendSMS("Appointment tomorrow")
4. Delivery confirmation(
  • SMS or audio call
  • Might include option for replying
  - To initiate a call to re-arrange
5. She knows...
Computer to Person Communications

- User can reply to SMS to initiate a call

1. Application
2. Third Party Interface (Telecom Web Services)
3. Network Capabilities
4. Operator Network
5. Telecom Web Services

6. Reply to SMS
7. IncomingSMS()
8. MakeCall(#1,#2)
Typically managing 10,000 - 20,000 properties
• Ad hoc maintenance and repairs
• Safety inspections (gas)
• etc

Specialised application developed by CONSILIUM technologies
• TotalMobile

Real time monitoring and control of mobile workforce
- Workforce Care
- Timesheet
- Job Scheduling
- Inspection & New Jobs
- Materials Management
- Incident Reporting
- Gas Servicing
- Tracking
- etc

IP connection (GPRS, 3G, or WiFi)
Normal Despatch & Housing Repairs Process

Synchronisation over “Open” IP Network (e.g. GPRS, 3G, WiFi, WiMax)

Telco Value is ‘over the top’ bit pipe

Consilium TotalMobile Application Suite

Core Benefits:
- Increased productivity
- Reduced costs
- Improved, more agile service
- Better management information
- More informed control centre
Examples of Value add by Telco 1

- Appointment reminding - message to household/contact reminding of appointment, with options to reschedule.
  - Audio call, with DTMF interaction
  - SMS with delivery confirmation, response options for automatic call set-up

- Calls from operative to customer, e.g. to confirm they are in or to say they are late
  - 3rd party call as from control centre
  - Anonymity for worker
  - Householder may not answer if call not from known number

- Avoiding time lost if occupant isn’t in
- Semi-automated rescheduling
- Improved efficiency
  - More jobs / day
- Improved customer care
- Cost reduction

Call Set-up & Control
Messaging
Examples of Value add by Telco 2

- **Basic presence - handset turned on**
  - Otherwise application can only detect active sign-on by worker

- **Real-time approximate location**
  - Handsets are GPS enabled, but often not connected over IP
  - GPS coverage often very poor & slow
  - GPS drains batteries

- **Messaging**
  - Reliable real-time communications to/from workers

- **Workforce care**
- **Presence**

- **Dynamic, automatic job scheduling**
  - Cost reduction

- **Information transfer**
  - E.g. availability of materials with other workers

- **Simple messaging**
Telecom Web Services Exploitation Categories.

**Some Examples out of 1000s**

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Ditton Manor - 30 Sept 2008

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Web service definitions defines the external view (interface) of the web services
- The definition does not define a web service implementation

Real Web Services require
- A publicly accessible interface
- Access controls
  - Security
  - Policy Control
- Logging and accounting
- Associated business logic
Policy Enforcement Example - Simplified

- Premium content requested by SMS (e.g. streamed video)
  - Requesting SMS considered auditable request for service
- Users’ identity hidden from service provider

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<td>Send modified message to the ASP (standard SMS-X web service).</td>
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<td>c)</td>
<td>If successful, invoke the charging service.</td>
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- Similar policy might be applied if application did a location request
  - Protecting users’ privacy

Simple web service ‘orchestration’
SOA within the exposed Web Service
- SOA service creation, mash-ups, etc use telecom web services
  - External, applications
  - Telecom enabled by *telecom web services*

**Composite Services, Mash-Ups, etc**

**Secure, Open Telecom Web Services**

**Network as a Service**

**Other Web Services (capabilities)**
• Headquarters in Belfast, Northern Ireland, UK
  Offices in US, Canada, Sweden, Ukraine, Russia, France, Germany, etc
• Over 170 employees
• Providing a complete service evolution solution to new and established carriers

Enabling Telco 2.0 business models through Telecom Web Services