Telecom Service Delivery Platforms and Application Stores

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Outline

- Telecom SDP
- Telecom SDP developments in ITU-T
- Telecom SDP integration with Application Stores
- Current Telecom SDP status and evolution paths (SDPaaS)
Reusable Telecom capabilities for reduced service development costs

- Applying the development approach from IT industry to telecoms

Open service environment for flexible and agile service creation, execution, management and deployment

- “Rapid change” is key for satisfying the changing customer needs
- New business opportunities via an environment integrating applications and telecom infrastructure

Telecom “Service Delivery Platform” (SDP)
A Telecom SDP for competing with Web Companies

Telecom Providers and Web reality

- Web apps: many, diverse, rich, high speed dev.
- "Web" is the platform of Web companies
- Telecom providers face the risk to become only ‘bit pipe’ providers (Over The TOP services)

New services are a strategic differentiator for Telecom Providers and a way to counter lower voice revenues

Inefficiency and cost of Legacy service delivery

Telecom SDP as a new framework for service deployment

- Multi-party business model
- Multi service
- Web orientation, mashups

NOTE: No standardized definition of “SDP” (different market perspectives/focus).

Service Delivery Platform [from MORIANA]: System architecture/environment enabling efficient creation, deployment, execution, orchestration and management of one/more service classes.
A SDP ecosystem increases the business opportunities

- Personalisation
- Communities
- On-Demand
- Self-Service
- Collaboration

End user created applications

3rd Party applications

Network Provider/Service Provider services

Common Telecom capabilities

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SDP for convergent services (service examples)

**Telecom Services**
- MMS
- mNew
- UC
- IPTV

**Internet/Mobile Internet**
- diary
- mobile search
- blog
- video surf
- mBook
- map

**Machine to Machine (M2M) Applications**
- eHealth
- eTraffic
- Env. monitoring
- agriculture monitoring
- City emergency
- Smart Grid

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**SDP for convergent services**

**Telecom adaptors**
**Internet/Web App adaptors**
**M2M App adaptors**

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Position of SDP in Telecom Infrastructure

Applications

Streaming
Download
Video Mail
Location
E-business
Multimedia Messaging
Mobile Payment

Service Delivery Platform

Enablers

LCS
Content Download
WAP Gateway
MMSC
SMSC
Streaming Server
DRM

Underlying networks

CDMA2000
WCDMA
Cable
Fixed Broadband
GPRS
GSM
PSTN

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Telecom SDP developments in ITU-T
ITU-T Recommendation Y.2240 “Requirements and capabilities for NGN Service Integration and Delivery Environment (NGN-SIDE)"

- NGN-SIDE ecosystem
  - Business roles
- NGN-SIDE functional framework
  - Layered view and functional view
- NGN-SIDE requirements
  - At application, integration, adaptation and security levels
- NGN-SIDE capabilities
  - Description and requirements for each capability
- Requirements of NGN-SIDE interfaces
  - Positioning within the NGN architecture
  - Resource Interfaces, Service Interfaces (UNI, NNI, ANI, SNI)
  - No reqts among different NGN-SIDE components
- Appendixes
  - Business deployment scenarios in the NGN-SIDE ecosystem
  - Application scenarios (3rd party app., In-house app., M2M app.)
  - Cloud services and supporting role played by NGN-SIDE
  - Survey of standards for APIs (no survey of overall SDP aspects)
NGN-SIDE aims to support a multi-fold business model and a comprehensive ecosystem for all stakeholders in the NGN value chain.

Business role relationships in the NGN-SIDE ecosystem

NGN-SIDE provides an open environment in NGN, with integration of resources from different domains, including Telecom domain (e.g. Fixed and Mobile Networks), Internet domain, Broadcasting domain, Content Provider domain.
Example scenario where the “NGN Provider” actor plays the “NGN-SIDE provider” role
Main functionalities of NGN-SIDE

- Integration of resources from different domains over NGN (e.g. telecom domain (fixed and mobile networks), broadcast domain, internet domain, content provider domain etc.)
- Adaptation, including abstraction and virtualization, of resources from different domains
- Resource brokering for mediation among applications and resources
- Application development environment for application developers
- Different service interfaces across ANI, UNI, SNI and NNI for exposure of NGN-SIDE capabilities and access to resources in different domains
- Mechanisms for support of diverse applications, including cloud, machine to machine, and ubiquitous sensor network applications
- Mechanisms for support of applications making usage of context-based information
- Mechanisms for content management
NGN-SIDE functional view

Applications
NGN-SIDE user layer

Service creation
Application development support
Resource repository
Testing environment

Service execution
Access control
Service orchestration
Resource registry
Service dispatcher
Policy decision
Resource manager

NGN-SIDE Integration layer
Policy management
Content management
Charging
Management of role related information
Application provisioning
Context management
Service delivery management

Resource brokering
Adaptors for NGN
Adaptors for Non-NGN

NGN-SIDE Adaptation layer

NGN-SIDE layer
Resources offered by NGN
Resources offered by Non-NGN

NGN-SIDE resource layer
NOTE: SG13 is now progressing the NGN-SIDE Functional Architecture (Y.NGN-SIDE-Arch)

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Overall standardization efforts on Telecom SDP

Various SDOs/Forums are involved in this ongoing process

- **Framework perspective**
  - ITU-T: SG13 (NGN/Future Networks), SG16/SG9 (IPTV), (FG CC)
  - OMA: OMA Service (Provider) Environment, Enablers, APIs
  - IEEE: NGSON (Next Generation Service Overlay Network)
  - ATIS: Service Oriented Networks (SON) [now renamed as Cloud Services Forum]

- **Management perspective**: TMF Service Delivery Framework

- **IMS focus**: 3GPP [SDP can build over IMS or not]

- **Others**: Wholesale Application Community etc.

- **Testbeds**: (e.g. Fraunhofer FOKUS)

Some challenges of the standardization process

- Process coordination among relevant SDOs
- A minimum set of standardized APIs to be adopted by each SDP
- Interoperability among different SDP implementations
Telecom SDP integration with Application Stores
Application Stores can use SDP capabilities as support for application building

- Basic capabilities (e.g., network storage, instant messaging, search engine)
- Capabilities from various domains
- Openness & exposure
- Store portal
- Developer Community
- Online service creation
- Unified Management
- Service Hosting
- etc.

- Value for End Users: rich services and contents
- Value for Telecom Providers: keeping a role in the value chain, low cost, and quick service development
- Value for Developers: access to Telcos’ capabilities, unified APIs, revenue sharing

Value chain integration and cooperation

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Current Telecom SDP status and evolution paths
Telecom SDPs today and Web (platform) attributes

Status of current Telecom SDPs
- Emphasis on “control and management” - SDP (and IMS) are centralized environments (centralized servers controlling the network capabilities)
- Services are geographically-bound (with service interoperability issues between Telecom Providers)
- Function-centric service architectures
- Not so open
  - Proprietary control mechanisms, SDK, market is restricted

- Convergence of Telecoms, Internet, IT, Entertainment and resulting diversification of value chains
- Existence of multiple domain-specific SDPs (for mobile, IPTV, legacy and broadband services, Machine-to-Machine applications etc.)

The good attributes of Overlay SDPs (Web 2.0 platforms)
- A single and distributed environment
- Services are global, always available
- Data-centric service architectures
- Open APIs for 3rd parties and social features
### Some interesting evolution paths for an enhanced value Telecom SDP

- Service Oriented Architecture (SOA) model and open APIs pave the way to open and decentralized (distributed) SDPs
- All services on demand: a Cloud-based SDP
- **SDP as a Service from the Cloud (SDPaaS)**
- **Modular SDP architecture** with common/general purpose functional modules and device/service-specific functional modules
- **Data enhanced SDP** (e.g. via data mining and knowledge-based capabilities)
- Interconnection/federation of SDPs for geographical pervasiveness
- Others (SDP as a Broker)
SDPaaS may be implemented via utilization and intermediation of different basic SaaS and Paas cloud services
Evolution into the Cloud

- Decouple the functions of each subsystem of a SDP
- Distribute the construction and deployment of each SDP subsystem
- Make the services of each SDP subsystem into a resource pool
- Implement the essential distributed Services and cloud management

SDP as a Service from the Cloud

- Today’s Web platforms include Application Stores and SDP in the cloud (developer support, SDP capabilities as a Service, API-based mashups)

Thus some key requirements of a Telecom SDP into the cloud:
- Platform exposure in the cloud
- Developer support and governance with respect to 3rd parties
- Service discovery and agile service composition and provision

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Conclusion

- A Telecom SDP ecosystem enables new business opportunities and a way for Telecom providers to compete with Web platforms.
- SDOs and Forums are involved in SDP standardization from different perspectives and ITU-T is part of this effort.
  - Telecom SDP integration with Application Stores can bring additional value.
  - Cloud based approach and SDP as a Service from the cloud are interesting evolution paths for an enhanced value Telecom SDP.
Thank you for your attention

Questions ?