ORACLE COMMUNICATIONS

Making Money Through API Exposure

Enabling New Business Models

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Introduction

Over the last decade, the Telecommunications Industry has laid the foundation for many of the innovative technologies in use today, for example network APIs (Application Program Interfaces), application stores, and video communications. Only a few years ago, communications service provider (CSP) application stores were responsible for $71B[1] of content sales (ringtones, wallpapers, movies, and games), a figure that dwarfs the $2B[2] sales figure achieved in 2010 through the handset stores.

However, CSPs have been steadily losing the "hearts and minds" of customers, developers and content owners as they have been slow to respond to the changes in expectations caused by the entry of Apple, Amazon and Google in developed markets. This whitepaper sets out how CSPs can regain ground in the emerging competitive environment through the use of the APIs to promote innovation and to open up untapped revenue opportunities.

Innovations in network APIs are underway at many CSPs around the world. These CSPs are harnessing their core business model advantage, a direct payment relationship with their customers, to beat the web-based service providers at their own game; as well as exposing APIs that create a broad range of new business models. CSPs such as Verizon, Telecom Italia, Telefonica (BlueVia) and Aircel are using APIs to enable innovation internally, with established partners, and across the long tail of third party developers (think of them as emerging partners).

The sources of applications and services are vast. They span CSPs' developer communities; CSPs' existing partners; national, multi-national and international content owners and service providers; customer, both consumer and enterprise; and complementary web-based service providers. CSPs remain an important channel to market across consumers and enterprises, and must take advantage of their core business model in being aligned to the customer (the customer pays them) by delivering impartial content and service access across all the devices a customer owns.

There is a broader strategic theme that is impacting all businesses, the recognition that to succeed an ecosystem-based approach is required. Telecommunications is no longer a stand-alone industry, it is part of the broader IT (Information Technology) industry. Just like IT, telecoms must be embedded across many industries to become the "essential spice" for any service or business process. The

1 Source Tomi Ahonen, www.tomiahonen.com

2 Source IHS Screen Digest

financial markets have placed a $4T enterprise value on the telecom industry; the challenge facing the industry in the coming decade is to consolidate a position in the emerging ecosystems beyond simply fast pipes to the internet.

This whitepaper reviews the current state of the industry on network APIs, their importance to telecoms and most importantly a set of case studies on how CSPs are successfully using network APIs to innovate.

API Exposure

Telecom is Lagging Most Other Industries in API Adoption.

While most IPTV (IP Television) service providers struggled to engage customers, Netflix achieved phenomenal success with its video on demand service. By exposing a Representational State Transfer (REST) based API, their services could be easily embedded across hundreds of devices and at the same time solve the device diversity problem that has plagued CSPs and mobile application developers. The result was spectacular customer growth. Netflix has over 50 million subscribers in 2014 up about 65% in a year, each paying at least $8.99 per month.

It has been too easy for CSPs to discount the importance of APIs as something appropriate to web service providers and their business model of free, e.g. Google, FaceBook and Twitter's 10s of billions of API calls per day. However, CSPs provide the same type of service as Netflix and traditional businesses such as the New York Times (a business much older than telecoms) and NPR (National Public Radio) which delivered 1.5 billion stories per month via APIs last year.

API success is proven in other aspects of telecommunications and today, only CSPs are quite unique in their lack of adoption of APIs for service innovation, putting them at a competitive disadvantage in harnessing ecosystems to deliver value to their customers. For API success, the key is exposing what you do best. However, simply exposing an API to build a new line of business will not be successful. CSPs must focus on their core competence: communications and billing.

Some CSPs claim that exposing network APIs is difficult and risks commoditizing the core voice and messaging assets. They argue that there are difficulties in securely exposing call-control and messaging, which explains the twelve year delay in implementing APIs from the launch of The Parlay Group (originator of the API exposure concept). Such claims have been proven wrong, as will be shown in the Case Studies reviewed in this whitepaper.

To summarize, APIs are now a central strategy of most businesses, even old-world businesses like national public radio and newspapers. Netflix has demonstrated commercial success through its API strategy. APIs are simply an evolution of the web, they manage the device diversity problem, make it easy to work with partners, enable open innovation, and create a positive feedback loop around customer experience and revenue. CSPs can no longer afford delay; they need an API strategy across their entire business, not just for third parties, but also for innovation internally and with existing partners, in order to remain relevant to their customers.

Where's the Money in Network APIs?

The simple answer is the money is not in the APIs. Network APIs are simply a business enabler. The money is in the services and business models made possible by APIs. By 2015 at least $115B in revenue[3] is waiting for CSPs if they commit to an API strategy across services such as:

- $26B Payments service across goods and services
- $4.5B Presence and location enabled call centers
- $3B Messaging enabled customer service and business processes
- $42B Click to call, meet me at my number, alerting, etc
- $7.5B Advertising with user profile under customer control
- $1B Unified communications and collaboration
- $2.6B Directory services
- $1.5B Machine to machine

3 Source Alan Quayle Business and Service Development estimate for 2015 based on the top 15 APIs operators could implement.

- » $4-$9B Number provisioning
- » $14B USSD in developing markets where internet access is low
- » $1B Content delivery
- » $2B IVR / voice store / other voice related VAS
- » $5.9B Other

Examining the payment API in a little more depth and focusing first on digital goods that are delivered immediately[4], the addressable segments include social network gaming, online gaming, online media and videos, online music, mobile and tablet app sales through application stores, in-app purchases, and many others. Assuming a fair fee of 5%, rather than today's fees of 20-50% which have stifled adoption in many markets, opens up a net revenue of $2B (total payments through the payment API multiplied by the fee), just in the digital goods segment. If we open the payment API to most goods and services, e.g. train tickets, physical goods, the net revenue could easily be more than $26B.

Other APIs open up similarly massive opportunities when examined from a solutions perspective to specific verticals. Call control embedded into business processes, so called communication-enabled business processes, opens up a market potentially greater than payments. Imagine a location and messaging enabled break-down assist call center that knows your location as you call and sends you an SMS when the truck is on the way. The business savings from reduced errors and lower call center traffic run into tens of dollars per event.

Any service a CSP offers can be exposed through an API for partners to embed across many industries. However, it's not a matter of build it and they will come. The landscape has changed and requires active business development and partners to make APIs a success for telecom service providers.

CSP Advantages with Network APIs

CSPs have many important advantages in their APIs compared to other service providers. These include the following:

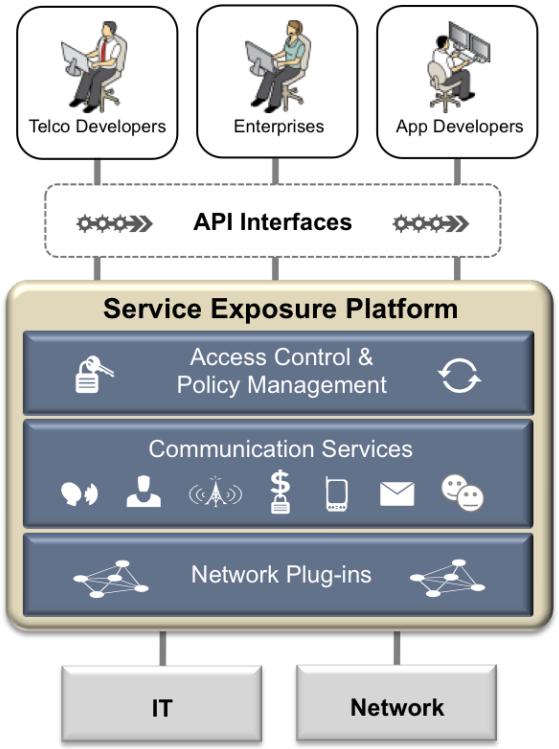
- » The internet is not pervasive; CSPs remain the only universal connectivity fabric for voice and messaging. We can call and text all colleagues, friends and family. We cannot IM (Instant Message), Tweet, or Skype without the recipient(s) being connected to the internet and running the same client.
- » The network is critical for simplicity in machine to machine applications, e.g. smart networks, mHealth, and connected car. M2M requires a simple, ubiquitous method of connectivity; CSPs' networks provide that connectivity along with many other capabilities such as location, context, and charging.
- » The network makes applications better: there's no drain on batteries for determining location unlike GPS (Global Positioning System); the network is aware of a customer's or device's context (presence, location, status); the network is secure; the CSP provides a channel to market across consumer and enterprise; and everyone is not connected by smartphones nor will they be, diversity remains. Customers deserve choice and CSPs provide that choice.
- » CSPs provide the world's only online ubiquitous billing mechanism. Most of the world's population does not have credit cards or even bank accounts, yet they have prepaid balances. In addition, in-app charging provides much higher conversion rates as it delivers a much easier and better user experience over other payment methods.
- » The business and operational support systems of CSPs provide national fulfillment capabilities that to date remain dedicated to just telecom services, they could be expanded across many high-tech goods and services.

4 This avoids the issue of whether the operator must become a bank to offer a general purpose payment service.

Multiple Models of Success

APIs impact internal innovation, innovation with partners and innovation with 3rd party developers (e.g. enterprises and simply unknown developers that will create something new using your APIs), see Figure 1. The Telecom Italia case study demonstrated the success that can be achieved in using APIs across all categories of innovation, from internal through to the long tail.

Figure 1. API Exposure Platform: High Level View



An overlooked area is using APIs to speed internal innovation. Today most CSPs are frustrated in their attempts to launch new services finding the processes slow and costly. Projects to launch new services can take 18 to 30 months. Using APIs enables reuse of existing service components, which have already been through the CSP's approval processes. Hence, the product management groups can now create new services without the burden of the lengthy processes, accelerating internal service innovation to weeks rather than years.

CSPs and Third Parties

CSP's developer initiatives, especially of late, have been quite consumer application focused, in general as a reaction to Apple and Google (Android). The focus on 'developers' misses a critical point: it's as important to explain the business opportunities presented by services delivered through APIs as it is to explain the technical details; A business person pays the developer's salary, and they also need to be convinced of the opportunity.

Many developers currently consider CSP APIs irrelevant; hence CSPs must focus on the few third party segments that have not closed the door to them.

CSPs are currently utilizing a number of models. Etisalat Sri Lanka is attracting interest because they pay developers to use their APIs. As the customer pays, they share that stimulated revenue with the developer. Etisalat (Sri Lanka) is more focused on populating applications into its own branded messaging app store. This reflects the emerging market nature of the Sri Lankan market, where smart phone penetration is low; hence it has an opportunity to become one of the popular app stores within its market.

"Developer pays" is also an option, as Verizon has shown through its success with Location through partners.

It is clear that there is not one right answer. Different models are valid and the formula for success varies depending on the developers' needs and market conditions. In the Case Studies section we'll look at a number of different ways service providers have been successful.

It cannot be stressed enough; developers of third-party applications are partners of the CSP, and must be treated as such. As discussed in the previous section, APIs are fundamental to today's business, the developer is a source of innovation for the CSP into new types of business that CSPs would not or could not pursue.

APIs make business sense as demonstrated by Netflix, eBay, Amazon, and Salesforce.com. They are the next step in how services are delivered over the internet. The "train has left the station" and CSPs must act quickly to catch up with the rest of the market. APIs are fundamental to all aspects of the Telcos' business; the key is exposing what you're good at and building a business around this.

Business models are moving fast and the game has moved beyond just exposing cool APIs. Don't focus on the developer, focus on the business / customer that can save money or win new revenue through using telecom APIs. Identify specific targets where your APIs solve a pain point for which the business is prepared to pay (in their time to integrate your API). For each target, build a bundled API so their job is even easier. This API bundle will likely include APIs other than just CSP APIs, and it will need to constantly evolve. APIs are just a piece of technology. As such, success will only be achieved through focusing on the business and delivering a solid value proposition to those using your APIs.

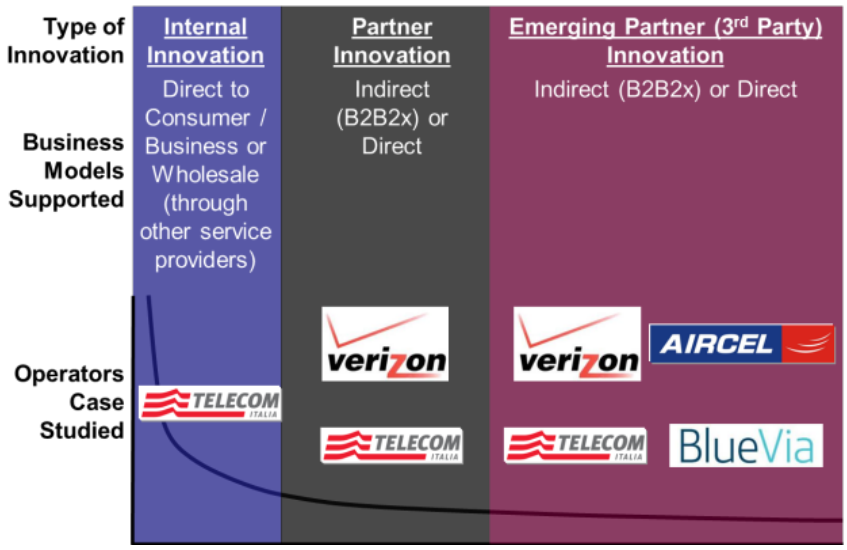
Case Studies

The purpose of this section is to provide some insight into what service providers are achieving in exposing APIs. In this section, Telecom Italia, Verizon, Aircel and BlueVia are reviewed. The types of innovation and the business models enabled in the studies include:

- Internal innovation, creating new services that are delivered direct by the CSP to its customers or through other service providers (e.g. MVNOs);
- Partner Innovation, enabling new services with partners (e.g. local system integrator) that can either be delivered directly by the CSP or through the partner (Business to Business to either consumer or Business, B2B2x); and
- 3rd Party (or emerging partner or long tail or the unknown developer), enabling new services that can either be delivered directly by the CSP or through the partner (B2B2x)

Telecom Italia's APIs are used across a range of business models, from direct to consumer and business, indirect through partners, to wholesaling services through Telecom Italia Sparkle. Its use of APIs spans internal innovation through to emerging partners. Verizon's use of APIs focuses on partners who package their APIs into solutions for call centers which the partner sells to the long tail of developers. Lastly, the Aircel and BlueVia case studies focus on the long tail.

Figure 2. Case Studies, Types of Innovation and Business Models Supported



Verizon

Verizon Wireless is the largest mobile network operator in the United States serving more than 100 million customers. Verizon Wireless exposes a range of Network APIs that allow partners and third party application developers to design applications using Verizon's network capabilities. Some of the assumptions behind Verizon's Network API initiative include:

- Support applications which use Network APIs on the server slide of a client/server application;
- Provide a single programming environment to the developer for many Verizon services;

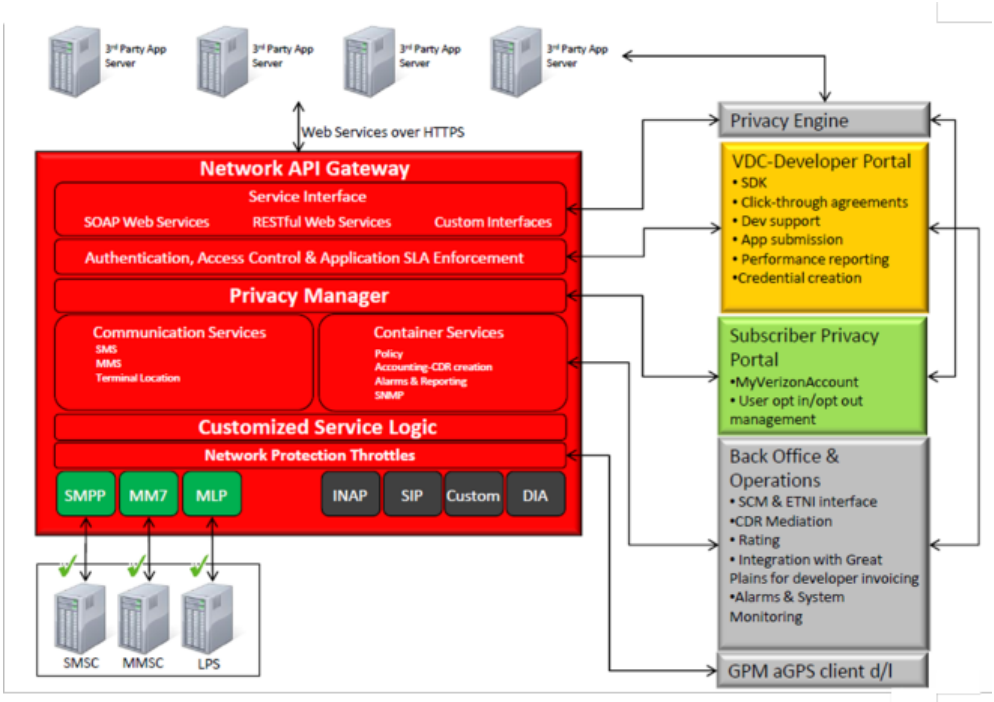
- Provide a common security and policy framework for developers and subscribers. This is a key point, Verizon Wireless makes a point of age verifying content, as well as providing tools for subscribers to easily control what information applications can access; and
- Use Internet standard REST and SOAP Web Services APIs for third party application servers to access the Verizon Service Control Gateway (SCG) which is provided by Oracle.

At launch, there were 20+ administrative, SMS, MMS and location APIs:

- Location APIs support;
  - Granular (precise) or AGPS location; and
  - Coarse (cell ID-based) location.
- Messaging APIs support send, receive and delivery receipt to Verizon wireless subscribers; and
- Admin APIs support aggregator and enterprise features.

The architecture for the Verizon Service Control Gateway (VZSCG) is shown in Figure 3. It is based on Oracle's Communication Services Gatekeeper with supporting systems for AGPS, privacy control, developer portal and back office operations. These supporting systems aid integration into the complex legacy environment of Verizon, support a broad range of business models, and provide Verizon's customers with the controls to easily manage their privacy. The SDK (Software Development Kit) enables application developers to test out their software and its interactions with the VZSCG in a stand-alone environment.

Figure 3. Verizon Service Control Gateway Architecture



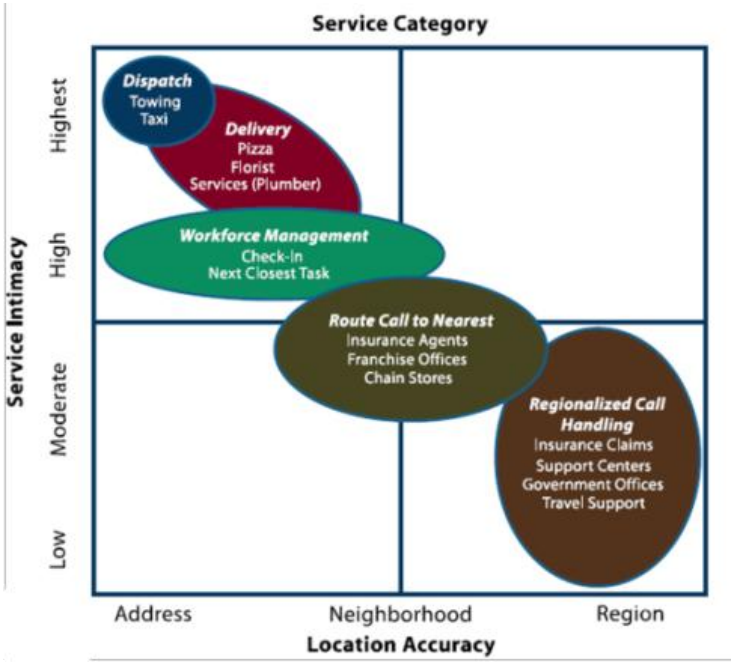
Case Study: Technocom Location enhanced Call Center and IVR (Interactive Voice Response) Services

Enterprises and individuals have become accustomed to knowing "who" is calling by virtue of ubiquitous caller ID that accompanies wire-line and wireless phone calls. Similar insight about "where" a caller is located is also now

available for call center and IVR (Interactive Voice Response) applications. The concept of the "location enhanced" call center and IVR is simple, customer services use the knowledge of the caller's location to improve the services delivered, resulting in a faster, more economical, and better customer experience, Figure 4 shows some of the use cases:

- Helping callers even when they don't know where they are to reduce costly dispatch mistakes and to substantially reduce the costs of customer service time by reducing service call duration.
- Automatically routing calls made to a central number to the local point of sale to leverage the personal service from local stores and franchises to close more sales and deliver better service.
- Reducing the hassle and time in answering the question "Where are you?" to realize service provider cost savings and improve customer satisfaction.

Figure 4. Location enhanced Call Center and IVR Applications



Technocom has integrated Verizon Wireless' location and messaging APIs into its Location-enhanced Call Center and IVR Services, as well as other CSPs and fixed line location information. This is an example of Verizon Wireless stimulating innovation through API exposure with an established partner. Techncom was recently selected by FleetNet America, Inc. (www.fleetnetamerica.com) that coordinates emergency roadside assistance and maintenance management for many types of commercial equipment.

As an example, when someone breaks down and calls roadside assistance, the IVR will confirm it is OK to get the person's location for only that call. As the agent has the location information, time is saved and human error is removed. Then when the truck is scheduled, an SMS is sent to the person with the truck's estimated time of arrival and contact information, which further saves call center agent time. The savings enabled by the location and messaging API can be in the order of tens of dollars per event, so the API charges are negligible.

The difference in value between the wholesale business of exposing APIs and delivering value to businesses highlights an important consideration for CSPs. As they expose APIs, they are enabling innovation, but the business models created on top of the APIs is where significant value is created.

Case Study: Location Aggregator Services

Location aggregators such as Loc-aid enable developers to have a single point of access to location information and other APIs such as messaging available across all CSPs in a country.

American Wagering uses location information to confirm the person placing the bet is within the state, a legal requirement. When a person places a bet by phone the network can confirm that their location is OK. GPS location can't be used as it is too easily "spoofed." The cost of the location dip is negligible compared to the money made from the additional bets placed by mobile gamblers.

Freedom Telecare provides solutions to the healthcare industry in managing home care. Their Timesheet Mobile service enables quick and accurate timekeeping of employees by simply tracking their mobile when they are at the patient's location and thereby enabling automation of time sheets. The cost of location dip is negligible compared to the costs savings in automating timesheets.

Other application areas include credit card fraud protection, market analytics, marketing campaigns (geo-fencing is proving quite popular for this segment), parole monitoring, real-time road traffic monitoring, asset tracking, etc.

Value of API exposure to Verizon

For Verizon Wireless, working with aggregators is proving highly successful in delivering value to business customers. This approach is also yielding success for Verizon as each month's utilization of their network services grows resulting in increasing revenue.

The Keys to Verizon's Success

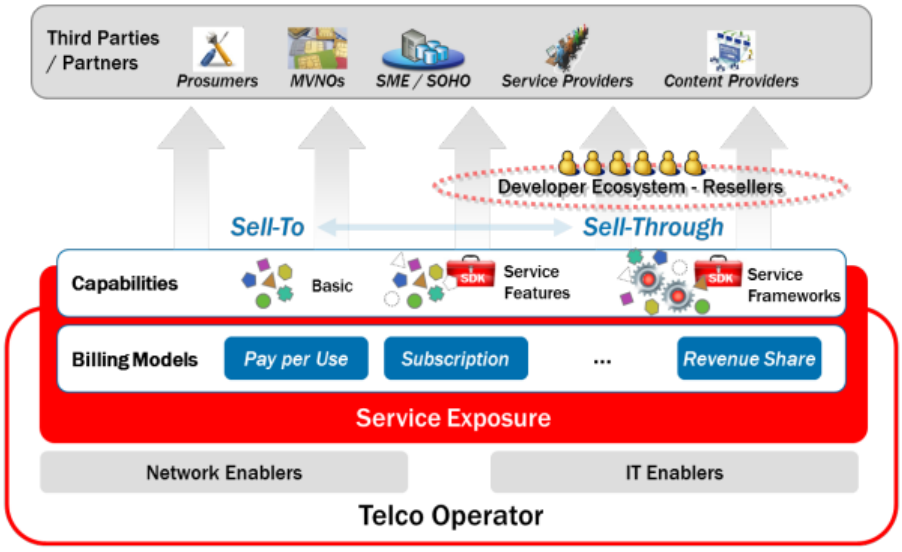
- Partners such as Technocom and Loc-aid translate the APIs into business solutions for enterprise customers
- Verizon has implemented a privacy framework that put the customer in control of their information, yet is easy to use by its partners creating a slick privacy experience

Telecom Italia

Telecom Italia is the largest Italian telecommunications company. The company operates landline telephone and internet services in Italy as well as mobile phone services in Italy and Brazil through its TIM subsidiary.

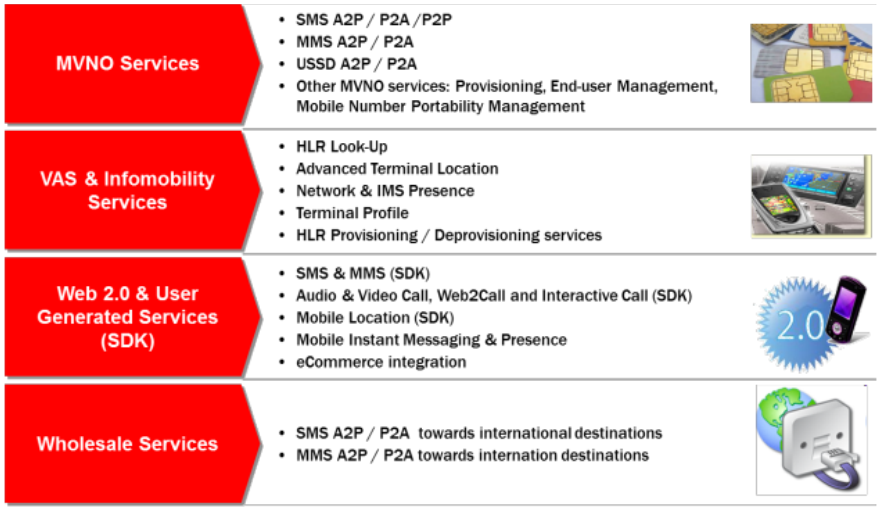
Telecom Italia is one of the most successful and extensive API exposure deployments to date. Network APIs are used across a range of business models, from direct to consumer and business, indirect through partners such as MVNOs (Mobile Virtual Network Operators) and InfoMobility value added service providers such as Cope Voce and Fiat, to wholesaling services through Telecom Italia Sparkle. Put simply, TI supports everything from sell-to to sell-through, as shown in Figure 5

Figure 5. Breadth of API Exposure Models (source Telecom Italia)



The capabilities exposed cover messaging, location, presence, profile, provisioning, call control, billing, and mobile number portability. Figure 6 shows the capabilities versus the different business models supported. Because Telecom Italia views APIs as a core strategy, from the beginning of the project in 2005 they have supported both internal and external innovation, which has enabled them to safely experiment and understand how to successful and safely expose capabilities such as call control and provisioning.

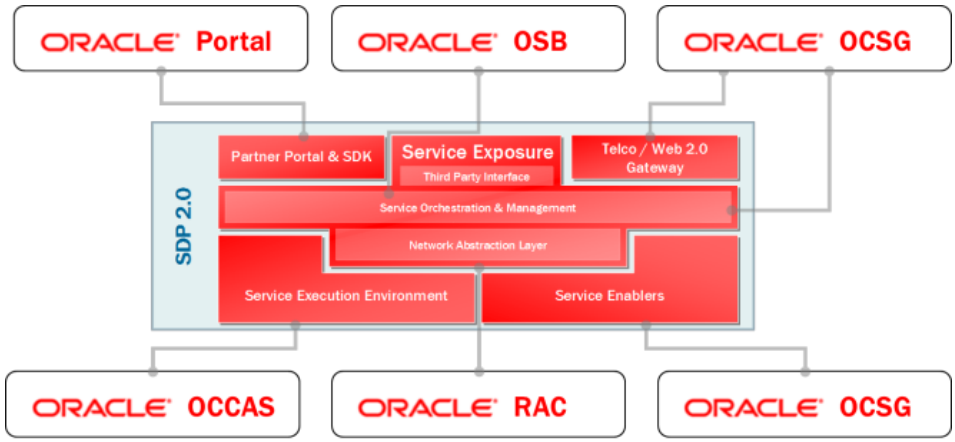
Figure 6. Breadth of Capabilities Exposed (source Telecom Italia)



Oracle provides the technology underlying Telecom Italia's success. Telecom Italia's SDP (Service Delivery Platform) 2.0 is shown in Figure 7. This provides a good example of the advantages in choosing a best of suite

solution, with pre-integration across the components to simplify set-up and integration costs, as well as a clear roadmap that does not require regular re-integration effort as components in the platform change.

Figure 7. Telecom Italia's SDP 2.0 Architecture (source Telecom Italia)



Value of API Exposure to Telecom Italia

Telecom Italia has gained significant financial and operational value in exposing network APIs to the many different stakeholders. The transition of managing hundreds of partners with custom interfaces to their network to a productized solution leveraging a single platform is one of the key values recognized by Telecom Italia. By implementing their API exposure platform they have been able to greatly reduce their operational costs in addition to all the revenue generating services that are also supporting.

The Keys to Telecom Italia's Success

- Open approach across all possible business models and supporting both internal developers as well as multiple types of partners, not just focusing on the "long-tail"
- Integrated platform that enables Telecom Italia to efficiently support high transaction volume and number of partners

Aircel

Aircel is a mobile network operator offering wireless voice, messaging, and data services to over 50 million subscribers in India. The company is a joint venture between Maxis Communications (majority owner) and Sindya Securities & Investments Private Limited.

Aircel has leveraged API exposure to support its network enabled application store, called Pocket Apps (see Figures 8 & 9) and support a wide range of consumer services. Through the use of these APIs, Aircel has been successful supporting its five core principles:

- Localized and contextually relevant to the customers' needs. Using location and presence (device status) to present both subscribed as well as recommended content and services.
- One service provider, one experience, one service across all the customer's devices. Reducing the fragmentation problem, providing billing API (both one off and subscription) and content delivery API to make it easy for customers to access the content they desire and use it across their devices.

» Customer Control, tools for the customer to manage and share their content and services. Only receive push content, e.g. headlines when defined by the customer, see what friends and family are using the service. The sharing is done in a 'private internet' unlike in Facebook, where the customer loses control of their private data.

» Packaged to specific group's needs, e.g. family bundle. Aircel realizes that people have different needs at different stages in their life; the store front is presented in a number of ways to best meet the specific needs of different segments.

» Recommendations to help customers discover the richness of content and services available.

Figure 8. Pocket Apps Experience (source Aircel)

Figure 9. Aircel's APIs (source Aircel)

One example of how network APIs are used is a Facebook application that enables the charging for users posting status updates. A user can add an audio message update to their Facebook page from their phone and leverage their mobile account in order to pay for the service. This is just one of the many types of innovative services that are supported by Aircel's network APIs.

Value of API Exposure to Aircel

Aircel has realized significant value from exposing their network APIs. Not only have they been able to drive significant revenue from new applications and services, but also they have been able to enable the creation of new and innovative services differentiating them from their competition. Within months of deploying the solution, Aircel had broken even on their initial investment and every month is increasing revenue from the utilization of their network services.

The Keys to Aircel's Success

1. Focus on customer experience, using APIs to make their store more relevant and personalized than any other store on the market
2. Recognition of the window of opportunity presented in their market to create a world-class store to compete with Apple and Google as they enter the Indian market.
3. Support the creation and deployment of innovative applications and services by internal and external developers leveraging their network APIs

Conclusions

APIs solve significant business challenges in managing device diversity and working with partners under a variety of business models as demonstrated by Netflix, Verizon and Telecom Italia.

There is a large unmet demand for the innovations made possible through CSPs exposing APIs. This is shown by Verizon demonstrating compelling business applications of its APIs through its aggregator partners, Telecom Italia enabling a variety of successful business models, and BlueVia's ablity to support many long-tail developers within a couple of months of launch.

Developers encompass many different segments, e.g. they are aggregators, system integrators, enterprise customers; they are not just consumer application development geeks. CSPs must segment and target to meet the requirements of the different segments.

Business model flexibility is essential. Developer pays, customer pays or CSP app store are all valid models. The key is to understand the partners' and service provider's needs.

CSPs must look beyond just exposing APIs. They are fostering innovation, and new businesses will emerge built on top of the APIs where significant value resides. Just as Google fosters innovation and then acquires promising new businesses, so must CSPs. The API initiatives must be focused on enabling open innovation rather than simply wholesaling APIs.

CSPs are currently making millions of dollars through their APIs, but the potential is significantly greater. We have seen some initial success of CSP API programs, but as telcos create more value and embed their networks across many ecosystems, we will see a lot more. We have only begun the API journey.

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