TELECOMMUNICATION - EMBRACING DIGITAL
APPLY 3D API STRATEGY TO GET MORE DIGITAL DIVIDEND

The 'digital now' strategy is now a matter of urgency for communication service providers (CSP) to compete with technology giants, and capitalize on opportunities in the digital value chain. To strengthen their digitization drive, they need to focus on the main constituent of any digital strategy – the application programming interfaces (API) design strategy.

A Mindcom market survey forecasts the telecom network API market to see a 28% CAGR and valuations of US$146 billion by 20191. To fully exploit the emerging API market, some CSPs have appointed a 'Digital Information Officer' to lead their overall digital enablement initiatives and bring focus on API strategies. However, silos API design approaches tend to result in each new service requiring a new set of APIs – contrary to the fundamental 'write once, reuse repeatedly' strength of APIs.

This paper discusses:

• The shortcomings and gaps in the current API strategy

• How a three-dimensional API strategy can improve digital dividends

• About the urgency of integrating all digital enablement programs

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Is your current API strategy flawed?

It is evident that CSPs are leading their digital enablement journeys on three different pathways, each with different drivers as well as objectives. The isolated business initiatives result in silo-based API strategies. While they meet expectations of cost savings, time reduction, and revenue improvement but unless they can exceed expectations, they cannot be the right strategy.
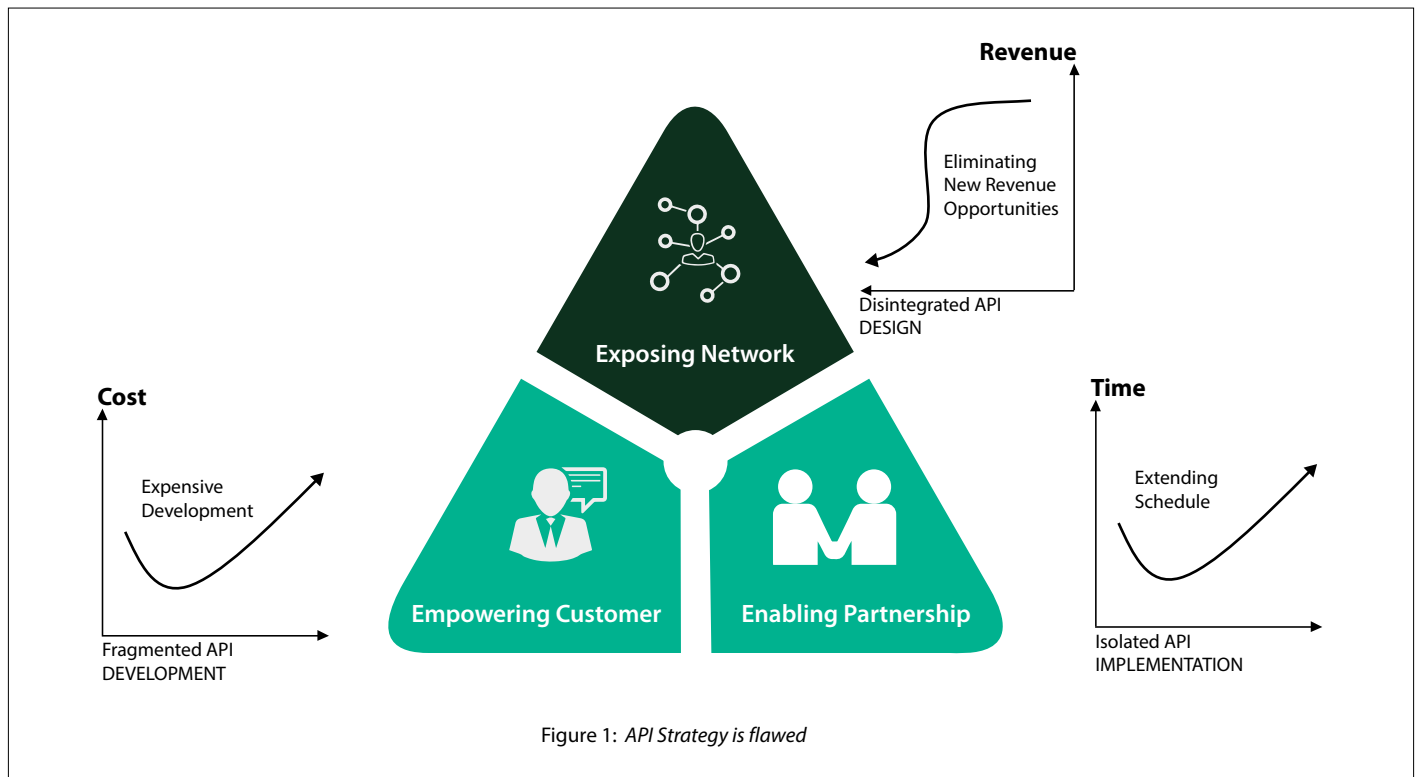
The fragmented API development strategy has many gaps that need to be plugged before they can support nested layers service design. Most of higher-level services are inter-coupled at a lower level in the hierarchical service structures. However, a disjointed approach doesn't promote the APIs' assembly to develop new services; instead, they result in painful redevelopment. It is unable to capitalize on additional **cost-saving** opportunities by synergizing and interlocking all three digital enablement initiatives.

The isolated API implementation strategy has a narrowed program view regarding the APIs' design according to specific needs, without making any attempt to understand how it can benefit other digital initiatives. This strategy results in numerous redundant APIs implemented across digital enablement programs. It is unable to effectively leverage the main guiding principle of APIs – the reuse, for **time-reduction**.

The disintegrated API design strategy does not facilitate a 360° design-view across IT and Network APIs design. It results in disconnected APIs that cannot be reused to design end-to-end services such as customer / business-to-network and partner-to-network type of API services. It does not support many innovative digital service use-cases, and is therefore unable to capitalize on the API's very basic characteristic, of services integration for **revenue**-**addition**.

Figure 1: *API Strategy is flawed*

"The API Strategy is the foundation of consolidation, interconnection, and integration initiatives. However, it is flawed with a fragmented, isolated, and disintegrated strategy in the communication industry. The result is an expensive customer service, slower onboarding, and fewer revenue opportunities."

[1]http://www.mindcommerce.com/telecom_network_api_marketplace_strategy_ecosystem_players_and_forecasts_2014__2019.php

On Three-Way Digital Enablement Journeys

The APIs' ubiquitous influence is being felt across industries. For communication industry however, it represents an exceptional scenario where it is navigating through the three-way digital enablement roadmaps for -
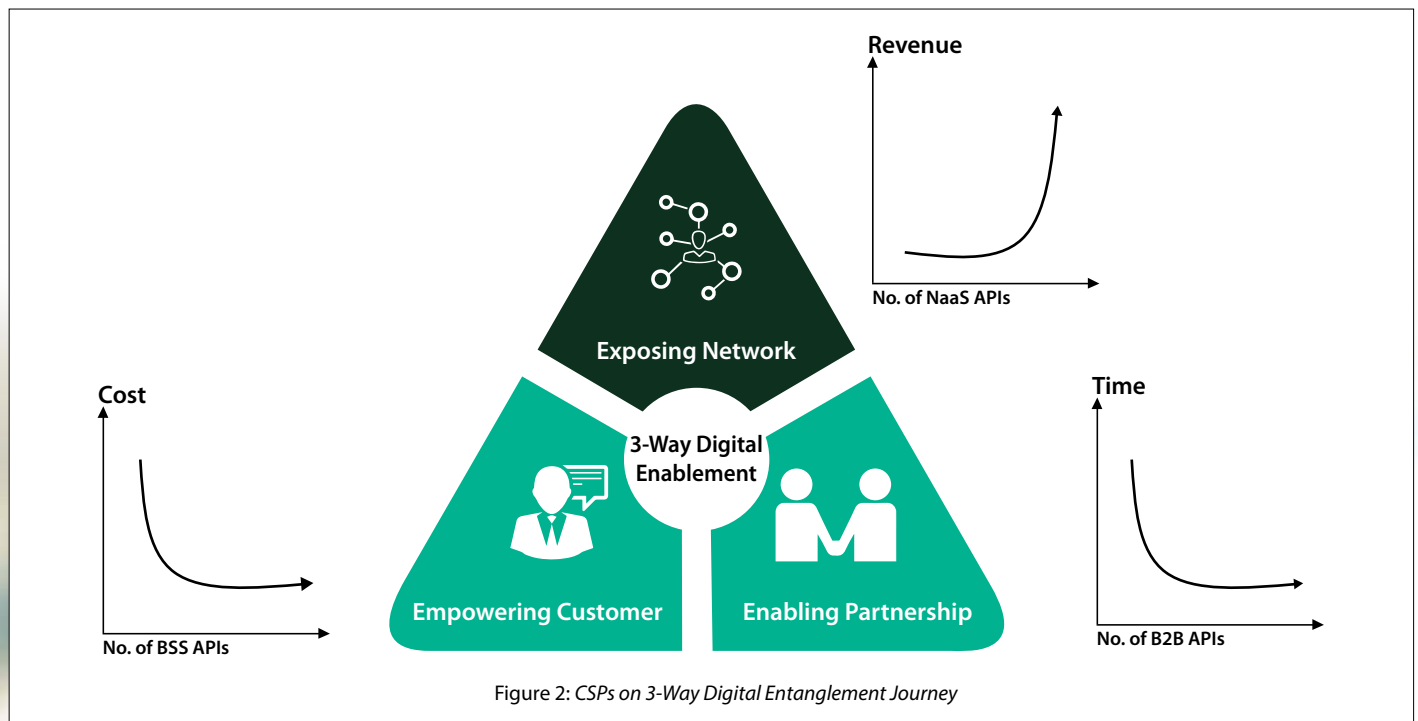
1. Empowering Customer
2. Enabling Partnership
3. Exposing Network

The customer empowerment is being realized by removing all these physical-operation desks, and moving their capabilities to digital omnichannel. CSPs will accomplish this design with customer-facing business support API services. The prime objective of the 'Business Support Services' API strategy is to lower the customer service **cost** and improve the customer experience.

Partnership enablement is about seamlessly connecting with partner back-end systems. In emerging complex partnership models, the business-to-business interfaces will be made available as digital services through API exchanges or brokers. We can refer to them as B2B digital bridges. The main purpose of the 'Business–to-Business' API strategy is to significantly reduce the lead time to onboard a partner, and the time-to-market for partner-based services.

The exposing of the network is becoming a reality by the transformation of core telecom network assets into digital assets. These provide avenues to enhance **revenues** by trading digital assets with the public, partners, and programmers. The prospect of additional revenues is the key driver for a 'Network-as-a-Service' API strategy.

Figure 2: *CSPs on 3-Way Digital Entanglement Journey*

"CSPs' functionally separated business units have been riding on digital waves for empowering their customers, enabling partnerships, and exposing networks to fulfill their unit-specific objectives of cost-saving, cycle-time-reduction, and additional revenue."

Application of 3-Dimensional API Strategy

In contrast to silo-based API strategies, the 3D API strategy is about ensuring interconnections among all digital enablement drives. It influences API service design at very early design phases and help in designing enriched, granular, and scalable APIs services.

Let us understand the drivers, design, and dividend of each digital enablement program, and how a 3D API strategy fully exploits its potential in order to create additional time, cost, and revenue dividends.
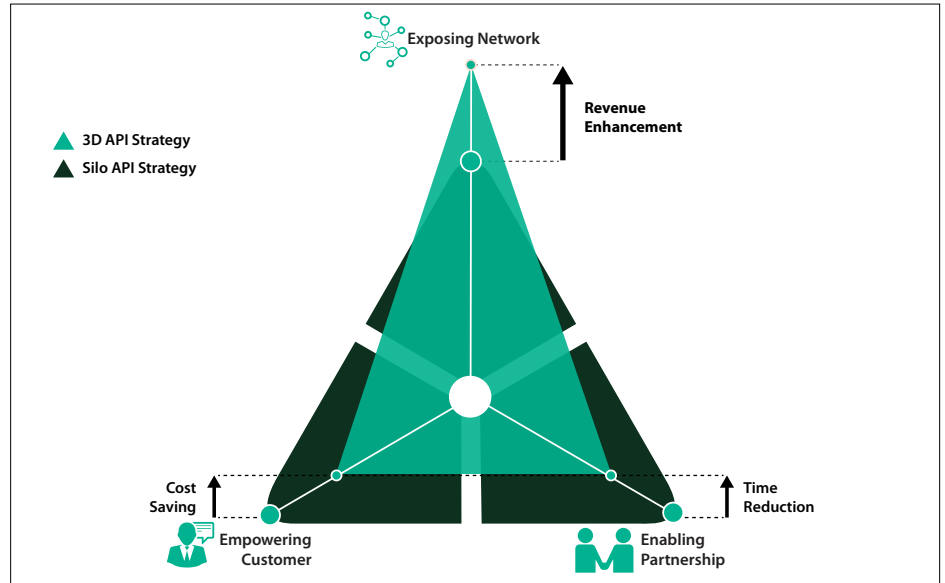

Figure 3: *3D API Strategy*

"An API strategy of intersecting three-way digital enablement programs results in enriched, granular, and scalable APIs, which eventually help in pulling cost and time down and pushing revenue up"

Empowering the Customer

Most of the CSPs have designed and deployed their BSS IT stack long before the cloud and mobile revolution. The digital business support systems now need to be more flexible and agile because they require massive integration and real-time access to data. The BSS API strategy for renewing BSS integration should be aligned with the following customer-facing business capabilities.

- **Products and Sales** – The product and service catalog APIs should empower digital customers to construct their own product bundles. The customer quote and sales order APIs should enable customers to decide and order their own products. It will eventually optimize the CSP's cost of acquiring customers.

- **Service Support** – The customer service support APIs should remodel the service management by phasing out the L-1 service desk. This will significantly reduce the cost of customer service.

- **Bill and Payment** – The CSPs' bill and payment APIs should be able to access real-time billing data for bill shock prevention and better bill control. It will lower the cost burden to raise bills and collect payments.

The 3D API strategy will enrich BSS API service design by bringing in requirements from all three digital enablement initiatives. The enriched API increases the reusability of BSS APIs across customers, partners, and other digital consumers.

Take the example of the APIs exposing customer service management capabilities, such as incident management and service request management, for enterprise and wholesale customers. The same set of APIs can be reused for service providers (partners) enablement as well for exchanging incidents and service request

between CSPs and their partners.

In addition, the same APIs can also be further reused internally. For example, event and performance management systems can reuse the 'create-incident' API for proactive and predictive incidents, if it is enriched appropriately.

Similarly, many other reusable design patterns can be discovered among business support services for products, sales, bills, and payments. The API reuse not only saves implementation time but also significantly reduces cost of development.
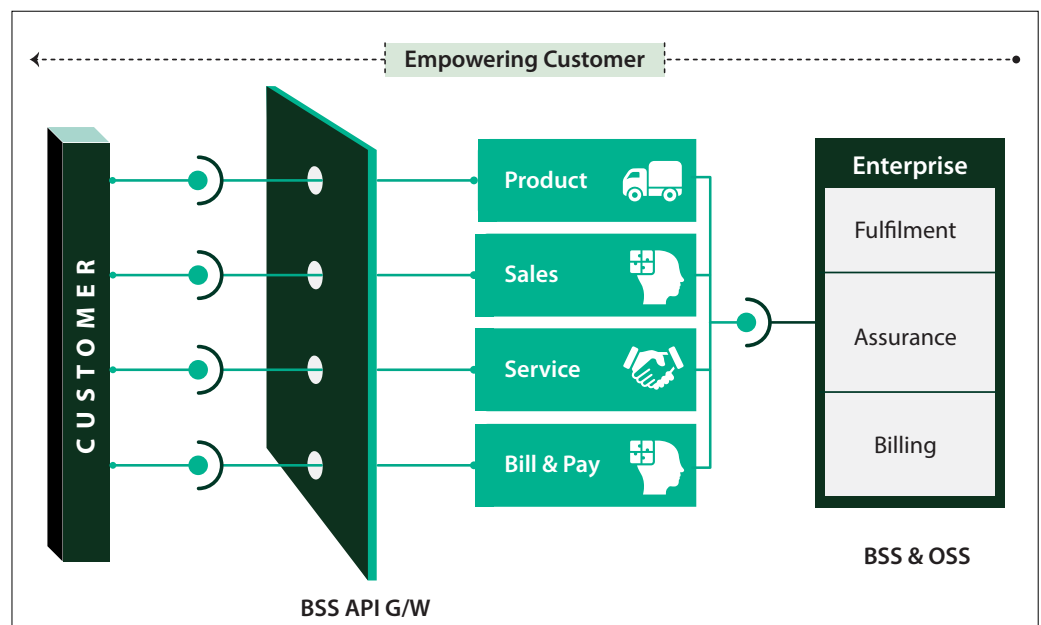

Figure 4a: *Empowering Customer through Omnichannel*

Enabling Partnership

In a partner-based digital economy, the CSPs intend to enrich, extend, and expand their products and services through partnership business models. The CSPs are focused on building integration capabilities across business-to-business supply-chain hand-off points. An independent research has revealed that CSP B2B API strategy is targeting to shorten the partner onboarding time by 75% or more.

- **Service Delivery** – The B2B service delivery APIs should provide real-time integration with partner's provision systems. It should be able to manage unpredictable spike in transactional volume and outage. This will reduce cycle **time** to fulfill a customer order.

- **Service Management** – The B2B service management APIs should aim to eliminate the swivel-chair-based approach for incidents, service requests, and change-management among partner ecosystems. This will eliminate the manual hand-off **time** required in a multipartner scenario.

- **Revenue Settlement** – The B2B revenue settlement APIs should be able to build partner trust, by bringing transparency in service usage, their pricing, rating, and timely payment settlement. These APIs avoid the need for reconciliation by providing end-to-end traceability, thereby removing the
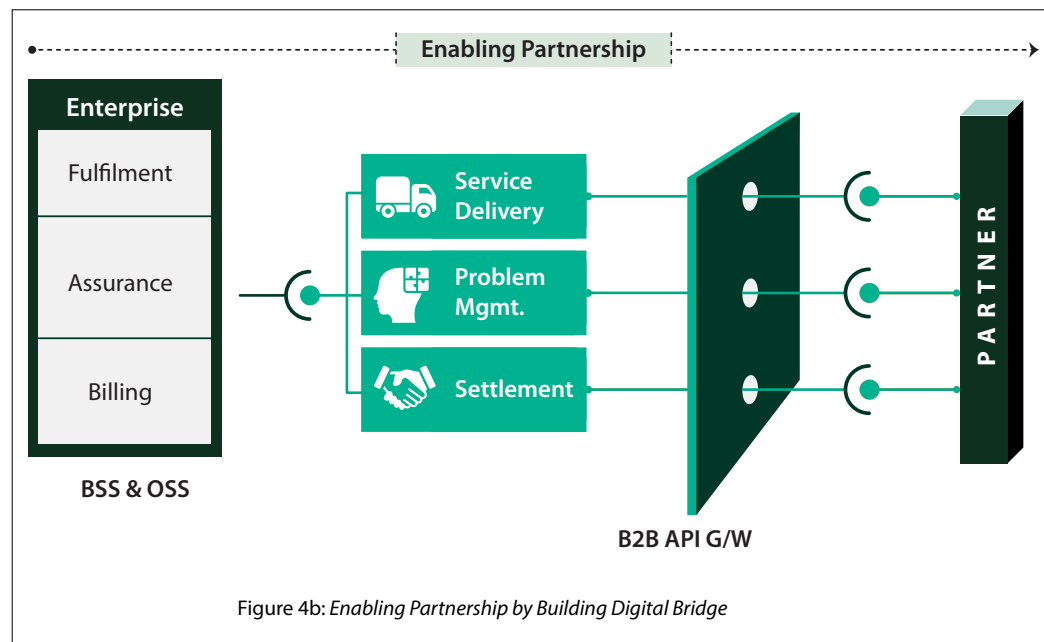

Figure 4b: *Enabling Partnership by Building Digital Bridge*

human intervention. This in turn will bring significant **time** saving for dispute resolution.

The 3D API Strategy promotes design of granular APIs to increase programmability, in order to address the agile requirements flowing from all three digital enablement programs. Each partner has a unique set of systems, and therefore imposes a unique set of integration requirements for onboarding. The higher programmability ensures that the B2B API services are flexible and scalable enough to quickly adapt to each partner's constraints.

For example, APIs exposing service order management capability such as

'create-service-order', 'notify-service-order-status', etc., will be different for each partner. The granular APIs ensure that they can be quickly assembled to comply with the systems design and data model of the partners' back-end.

Furthermore, granularity allows service order APIs to be easily programmed by other digital service innovators / entrepreneurs for their service order provisions as well. In the same way, granular APIs in service management and revenue settlement also ensure that agility is well addressed. The API granularity and programmability will save significant development **time** and discourage development of redundant APIs.

Exposing Network

In the multibillion API marketplace, CSPs are well positioned to capitalize their Network-as-a-Service APIs. The NaaS API strategy should encourage its main buyers such as over-the-top players, Internet-of-Things service-providers, and digital service entrepreneurs such as API Aggregators, and Apps Developers.

- **Over-The-Top Players** – Today OTT service experiences are constrained by public internet performance. The NaaS APIs should provide guaranteed Quality-of-Service to OTT players, significantly improving their customer experience. CSP and OTT collaboration will be the catalyst for **revenue** growth in telecom services.

- **Internet-of-Things** – The IoT success depends on the speed and security of traffic between devices and applications. The Machine-to-Machine capable APIs will help in faster time-to-market of IoT devices and applications by enabling seamless and swift onboarding on to the telecom network. The **revenue** growth
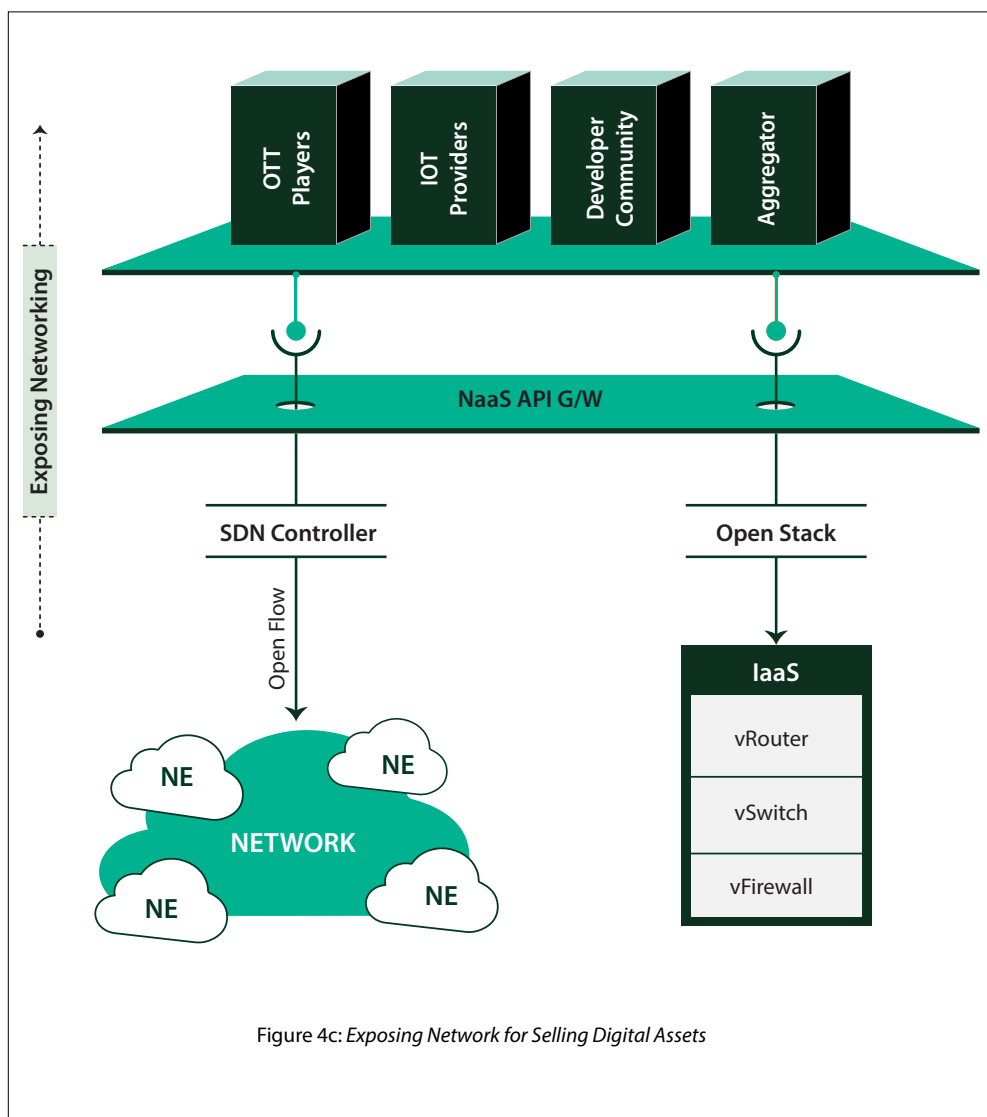

Figure 4c: *Exposing Network for Selling Digital Assets*

will be accelerated by extending NaaS APIs to the rapidly growing IoT market.

- **Digital Service Entrepreneurs** – Every day, API aggregators and apps developers are developing new services based on exposed NaaS APIs and API mash-ups from multiple CSPs. There is no limit to **revenue** growth when targeted NaaS APIs can be made available to developer communities.

Most importantly, 3D API strategy lays foundations for API integration across all three API catalogs published by silo-based API strategies. This will support newer service requirements from targeted developer segments, platforms, channels, and applications. The three-way integration, across BSS, B2B, and NaaS, will truly transform the CSP network into digital assets, as it provides direct access to network services through the BSS layer and B2B gateway. This will be a real game changer in revenue enhancements.

For example, the 'request-dynamic-bandwidth' service can be created and exposed by integrating BSS APIs such as 'create-customer-order', 'provision-service-order', with NaaS APIs such as 'upgrade-dynamic-bandwidth' and 'downgrade-dynamic-bandwidth'. The integrated API such as the 'request-dynamic-bandwidth' abstracts all the complexity related to API scalability, performance from digital consumers - OTT, IoT, and Developers. Moreover, API catalogs with intuitive operation names help consumers to quickly discover them.

Every day, there are numerous ideas being floated in the digital market, across industry segments that can be realized with new service creation by API mash-ups and integration. Each digital idea realization brings many API subscribers with lots of revenue opportunities.

Conclusion

The threats to the telecom industry are now reflecting on quarterly financial results – but the right API strategy will allow CSP to collaborate with technology giants instead of losing out to them as competition.

A holistic 3D API strategy that advocates a centralized API design authority should be an important part of transforming communication service providers' businesses into truly digital service providers. It will ensure that the digital factory product, the APIs, are rich to reuse, granular to gather, and flexible to fit easily.

The 3D API strategy can be effectively applied when CSPs' digital business units are led by a digital information officer who will bring synergy of digital objectives. The efficiency of a unified digital function should be tested by its differential digital dividend of cost saving, cycle time reduction, and revenue addition.

About the Authors

Sanjay Kumar Verma

Principal, Consulting and Solution Architecture; Wholesale, Enterprise, and Retail Telecommunications domains

Sanjay Kumar Verma, is a Principal Consultant with over 17 years of experience in Consulting and Solution Architecture across Wholesale, Enterprise, and Retail Telecommunications domains. He predominantly works on CRM, Assurance, Billing, ERP, and Business Analytics solutions. He has published many points-of-view and white papers on the evolution of IT landscape to support latest telecom technology trends, products, and services.

Jai Kumaran

Head, Europe Consulting, CME

Jai heads the Europe Consulting for CME with 20+ years of experience working with leading telecom service providers and OEMs. He helps customers in delivering business transformation solutions through his deep insights in the telecom domain and skills in Consulting, Delivery Management, and Account / Client Management.

For more information, contact askus@infosys.com

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