“As a Service” (XaaS) Business Model for Telecom Industry
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1. Introduction

“As a Service” is rapidly growing in the IT market specially in the “Infrastructure as a service” and pure “Software as a service” segment. “As a service” industry has made rapid strides in the last 10 years. The big five players - Amazon, Microsoft, Google, IBM SoftLayer & Oracle are offering various types of services in IaaS/PaaS space. SaaS market has many unicorns including Uber, Palantir, Dropbox, Salesforce.com etc. to name just a few.

For a long time the telecom industry has been the “carrier” for many unicorn’s subscriber traffic and have seen these unicorns utilize their network to grow rapidly in a very short span of time. Can telecom industry expect unicorn solutions in the “as a service” segment? There is a deep desire in telecom industry to create a big impact use case to drive subscriber subscriptions and loyalty.

Telecom service providers in market are increasingly looking to offer existing and new solutions in “as a service” model. “As a Service” models are expected to be more aligned with the business need of specific segments of end customers. Such models are also quite suitable for some of the emerging technologies including IOT and big data based analytics.

“As a Service” Solution overview - what’s it about

Deployment Model

Operator (Customer) | Benefit to Operators
Operator Network | Convert CAPEX to OPEX
Users | Flexible Operations
Remote access | Leverage Economies of scale for quality and cost savings
“As a Service” Solutions | Reduce delivery time: from months to weeks
2. “As a Service” for Telecom Industry

There are multiple definitions of “As a service” for Telecom industry. The key features of most of these definitions are as follows:

1. **Cloudification and “centralized deployment” of solution:** “As a service” solution should be deployed in a centralized location which is easily accessible from a wide geography. The deployment of solution should be cloud based so that the solution has elasticity to cater to varying work-loads and can evolve as capacity requirements for the solution increase.

2. **Resource Sharing: Multiple customers using the same instance of solution:** Multiple customers should be served from one instance of “as a service” solution. The solution will have to implement multi-tenancy or similar mechanism to ensure that hardware, licenses, infrastructure etc are shared across customers to achieve economies of scale. The solutions which are dedicated for a customer are typically capex to opex financial models and are not full “as a service” solutions.

3. **Subscription commercial model based on Pay-as-you-use or Pay-as-you-grow principle:** To get true benefit from “as a service” solution the Operators should be able to take subscription of the solution only for the capacity and licenses actually required by them. They should be able to upgrade subscriptions as they grow. This model helps Operators create low risk business cases for launch of new products.

**Key features of Telecom “as a service” solution**

- Cloudification of Application
- Resource sharing across customers
- Subscription Commercial model
There are significant implications for the telecom industry from “as a service” solutions. “As a service” solutions require significant change in the way solutions are created, marketed, sold and deployed in an operator’s environment. There will be changes both for the supplier of “as a service” solution and to the user of these services. “As a service” solutions differ significantly from traditional solutions in terms of:

1. **Delivery considerations**: “As a service” solutions are designed, deployed and operated by the supplier. Operators subscribe to the service and integrate it with their network & infrastructure. Both Operators and “as a service” solution providers will have to transfer their existing processes, tools and systems to effectively create and deploy ‘as a service’ solutions.

2. **Commercial model**: “As a service” solutions offer a capex light model. This allows flexible use of “as a service” solutions.

3. **Business model**: “As a service” solutions are closer to a “marketplace” model where the solutions components provided by a different organization. Such models allow different forms of partnerships and commercial relations between the service provider and service user. The initial target segment for Telecom “as a service” solutions are likely to be a portion of Operators and large enterprise customers which are focusing of launching new products or upgrading their infrastructure in a lower TCO approach. “As a service” solutions also enable customers to implement new business models and new products in a cost-effective fashion.

2.1. **Delivery Considerations for Telecom “as a service” solutions**

Typical Telecom requirements and deployments including for “as a service” are different from regular enterprise deployments.

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**Figure 1**: Key considerations for Telecom “As a Service” solutions

- Regulatory Requirements
- Latency sensitive network traffic
- High Integration with existing infra
- Higher customization

“As a Service”
Telecom applications must consider various factors while offering a solution in “as a service” delivery model. Some of these key considerations are mentioned below.

**Regulatory requirements**
Telecom regulatory requirements are evolving with changing technology. New regulations also bring increased scrutiny and reporting. Additionally, these requirements vary from one country to another. Telecom companies have to implement controls and monitoring systems to comply with regulations for “as a service” deployments. The regulatory requirements are usually more stringent when end-subscriber data is involved. In some cases, this involves taking consent of individuals, laws, etc., before data can be sent abroad. Data or traffic crossing national boundaries is a sensitive issue from a regulatory point of view.

**Network centric and network attached applications are latency sensitive**
SaaS applications prefer a completely centralized deployment. In a typical deployment, few global installations will serve customers across the global. However, the Telecom applications are typically different. Telecom applications that deal with user traffic are latency sensitive. This imposes some restriction on the extent of centralization. Complete end-to-end scenarios will have to be considered to ensure that latency and other related requirements of applications are satisfied. Connectivity parameters like latency, jitter, etc., and connectivity costs play a significant role in the overall design of the “As a Service” solution.

**Higher integration requirements with existing infrastructure**
Telecom environments have evolved over a long period of time. Multiple technologies and solutions are deployed in the operator environment. The service fulfillment, service assurance, and BSS tools are tightly integrated with each other. A new “as a service” solution will have to integrate into the existing setup. Numerous integrations in operator’s environments will be required across the service delivery and service fulfillment stage for the new “as a service” deployment.

**Higher customizations requirements**
Operators deploy solution components from different vendors. The features enabled on the network elements vary from one operator to another. The reporting requirements of customers also vary. There are customizations required on the core infrastructure as well as on the radio side. “As a service” applications will have to support customizations per operator. The networks evolve over time as technology changes and as user traffic profile changes. “As a service” solutions must adapt to evolving networks.
2.2. Commercial models for Telecom “as a service” solutions

One of the key market drivers for telecom “as a service” application is the flexible and subscription based commercial model. Operators expect a capex light and subscription based price model. Such a commercial model allows Operators to successfully create business models for launch of new products. The business cases of these new launches benefit from lower upfront investments and pay as you scale subscription model. The overall lower financial commitment attached to such business models reduces the business risk and allows Operators to test and launch new products. The deployment of these new solutions also benefit from the quicker time to delivery of “as a service” solutions.
2.3. Business Model for telecom “as a service” solutions - Key target customer segments

Right now “as a service” segment for telecom is in initial growth phase. More and more products are forecasted to be delivered in a service mode. The typical deployment for “as a service” solutions today is likely to be for specific segments of the market. Over time the market is expected to become more mainstream. Some of these high potential market segments for “as a Service” solutions are mentioned below.
Tier-3 operators and MVNO

Upgrades are costly. These are difficult to ignore as well in current competitive market place. “As a service” commercial models for upgraded solutions offer a nice option to manage the high initial capex investments and also to derive benefits from the expertise of the service provider in delivery of new services. In addition “as a service” solutions allow Tier-3 operators to deploy advanced tools for their network at relatively lesser cost commitments as compared to costs incurred by traditional deployment of Tier-1 operators.

IOT deployments

IOT is a rapidly emerging area with very high business potential. Business Insider [1] estimates the market size to be $6 trillion by 2020. A significant portion of this market will be services. The portfolio required for IOT is pretty big. IOT spans Smart Cities, Factory automation, Public Safety, Transportation etc. These solutions involve many verticals and also involve many layers of horizontal solutions. Telecom service provider’s existing network infrastructure must be augmented with new solutions to deliver comprehensive IOT solutions to customers. It is difficult for service providers to develop all these solutions in-house in a reasonable period of time. “As a service” deployment model offers a nice alternative to augment the existing portfolio quickly.

“As a service” also allows the “aaS” service provider to achieve higher scale which may be difficult for a single service provider to achieve on its own in initial stages. Higher scales makes investments earlier and also brings economies of scale for the industry.

Large enterprises

With increasing cloudification, centralization & standardization of IT systems and globalization large enterprises are looking at deploying different types of telecom and network services for enterprise traffic. Customized, secure and private networks make business sense as total traffic increases significantly and as cloudification allows deployment of new use cases to extend the portfolio of large enterprises. “As a service” model for telecom services is attractive for such customers as it allows them to get benefits from a private telecom deployment without the need to develop in-house expertise to deploy and manage the solution. It also allows them to scale up the solution as new products grows in the market.
Big data applications in the cloud

There is wide spread cloudification underway in various segments including in ecommerce and location based services. These segments benefit by sharing data across solutions to enable advanced analytics and machine learning to create new monetization use cases. Network service providers have large amount of data from their network. They are looking to mine this data and generate new use cases through analytics. The results of the analytics will be useful for a wide range of cloud applications.

Public cloud, open source bases solutions and big data analytics platforms provide an exciting opportunity for network service providers to monetize their large data. Various forms of analytics can be offered in a “as a service” variant. The compute requirements for analytics use cases will be fluctuating in initial stages as many use cases will be tested in the market. “As a service” variants make analytics more affordable to deploy and test in the market.

3. Conclusion

Telecom “as a Service” solutions have potential to target specific segments including IOT, Big data analytics, Large enterprises and Tier 3 operators. “as a service” solutions are different from traditional solutions. Both the solution providers and operators using the solution have to transform their existing systems, processes and commercial structure to take full benefit of “as a service” opportunities in the market. The difference and uniqueness of “as a service” solutions span delivery considerations, commercial structure and go-to-market business models.

“As a service” business delivery model is aligned with the changing market dynamics. Such solutions allow organizations to quickly test and launch new products in the market. “As a service” solutions also offer a pay-as-you-grow commercial model which again encourages innovation and new product launch.

Numerous “as a service” solutions for telecom have been launched and more solutions are in pipeline. Business support systems (BSS), Operation support systems (OSS), IT applications for telecom etc. are likely to see greater traction for “as a service” solutions. Telecom industry is looking forward to some of these solutions to enable them to quickly grow the market and enable new features.

4. Acronyms

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<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Aas</td>
<td>As a Service</td>
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<tr>
<td>IaaS</td>
<td>Infrastructure as a service</td>
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<tr>
<td>PaaS</td>
<td>Platform as a service</td>
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<tr>
<td>IOT</td>
<td>Internet of Things</td>
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<td>EPC</td>
<td>Enhanced Packet Core</td>
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<td>VoLTE</td>
<td>Voice over LTE (Long Term Evolution)</td>
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<td>WAN</td>
<td>Wide Area Network</td>
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<td>TCO</td>
<td>Total Cost of Ownership</td>
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<td>MVNO</td>
<td>Mobile Virtual Network Operator</td>
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5. References
