

PORTFOLIO : SERVICE

CONNECTING THE WORLD

INTERNET OF THINGS AND THE
MOBILE PLATFORM ECONOMY

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INTERNET OF THINGS AND THE MOBILE PLATFORM ECONOMY

We've witnessed the rise of the digital platform economy, which brings significant change to the way people work, interact, and create economic value. Mobile is now positioned for the arrival of its own platform economy. Before delving into what shape this is likely to take, it's useful to identify what we mean by digital platform economy. However, there seem to be no rigid definitions or existing model to help us.

Social media platforms focus on promoting social interactions, while extending their infrastructure to other platforms for integration, data sharing and better customer experience.

Applications use live-location data from mobile devices to provide traffic data, commute time or utilities that can be availed as required; while updating real-time traffic data and route details for other users in the same or in nearby areas! E-commerce websites use real-time data to generate personalised offers, with highly targeted offers and promotions on the basis of usage history.

The platform economy, sometimes also referred to as the sharing economy, challenges incumbents in many traditional markets. It also challenges conventional approaches to the definition of work and the way that value is created.

Digital platforms combine the physical foundation of the Internet, together with web services and advanced analytics, to create an infrastructure across which entire platform-based markets and ecosystems can operate. A range of organisations provide a platform for the consumption of services that include video or music, but also access to financial services, flight and hotel reservations and public utility services. The most important thing is that they link providers and consumers - offering vendors an extra sales or promotion channel and providing consumers with more choice, better customer experience and personalized services.

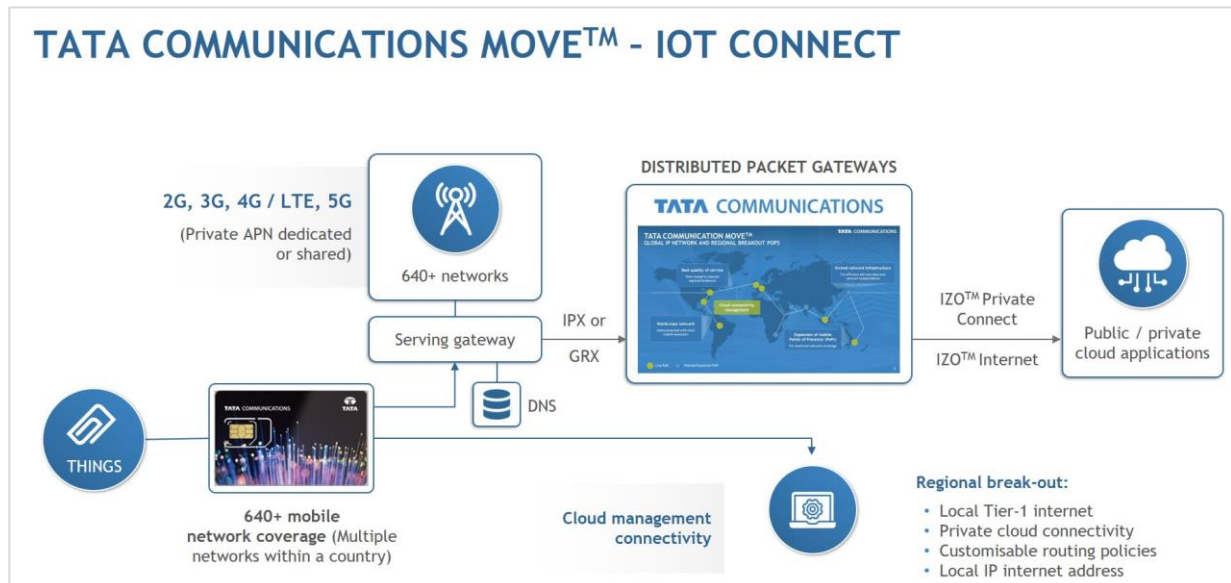
MOBILISING THE PLATFORM ECONOMY

In the same way that the digital platform economy is transforming the way people interact and do business, so the digital transformation journey being undertaken by enterprises will lead towards a mobile digital platform economy. As enterprises move from an intermediate 'mobile first' strategy towards a broader mobile platform approach, a multitude of enterprise applications become accessible via mobile. This in turn liberates enterprise employees, customers, and vendors from the restrictions of a physical world and the need to operate within the constraints of a fixed environment.

This trend reflects consumer adoption of mobile as the preferred way for social interaction. A combination of social networks, proximity and location services, Instant Messaging, presence and rich media - combined with authentication services, payments and a wide range of mobile apps - has created not just a mobility experience, but an expectation about the way people interact with each other via mobile. This is the premise of the mobile platform economy: that people expect to have the freedom and convenience to use mobile as an enabler of their lifestyles.

If the mobile platform economy can change the century old conventions of the way that work is organised and measured, this will have a profound effect on the very nature of the enterprise business model. This will extend to financial structure and the way that it measures output and value creation. While some enterprises are likely to be more affected than others, we are nevertheless witnessing a shift that influences not just local markets, but the global economy. A mobile platform economy, however, should not just be a mobile extension of existing services, such as being able to access Uber or Airbnb via a smartphone. The mobile platform economy should be able to create and sustain brand new models of interaction specifically enabled by the mobility factor and new monetisation streams, beyond what already exists.

TATA COMMUNICATIONS MOVE™ - IOT CONNECT





Mobile Network as a Service

AN INTRODUCTION

If mobilising the platform economy means something beyond just extending access to a digital platform for mobility, there is another related trend to understand. Enterprises are increasingly moving from a CAPEX based, to more of an OPEX-based commercial model for the procurement and supply of a range of products and services. In the world of information and communications technology, this introduces more acronyms:

- Software as a Service (SaaS) - a hosted software delivery model licensed on a subscription or usage basis
- Platform as a Service (PaaS) - a cloud-based service that provides a platform for developing and managing applications without the need to build and maintain a dedicated infrastructure
- Infrastructure as a Service (IaaS) - a cloud computing solution that provides virtualised computing resources over the Internet

Another variant is Communications Platform as a Service (CPaaS). Applying the definition above, this is a cloud-based approach to providing a platform for the development and management of communications applications. This is typically accessed via APIs, which are made available for developers to create IP based communications services that integrate with online applications.

A logical extension of this concept is Mobile Network as a Service (MNaaS). Also cloud-based, this provides a platform for developing and managing mobile communications applications via APIs - without the need to build and maintain a development infrastructure. While this 'X as a Service' trend is not just the preserve of enterprise applications, a combination of the digital platform economy in conjunction with on-demand commercial models associated with MNaaS will change patterns of mobile usage and value creation. This trend looks set to create new models and opportunities for the mobile communications industry.

INTERNET OF THINGS - CREATING NEW VALUE

Having discussed the platform economy and the shift to demand-based business models, let's turn now to an example of changing conventions and new value creation enabled by the mobile platform economy. This is Machine-to-Machine (M2M) communications in the overall context of the broader Internet of Things ecosystem.

With the increasing adoption of M2M communications and the broader IoT ecosystem, cellular IoT connectivity opens up a new dimension for the potential of the mobile platform economy. M2M mobile data connections are forecast to represent up to 29% of all licensed cellular mobile-connected devices by 2025¹. Forecasts by Ericsson indicate that just over 5 billion cellular connected out of a total 24 billion connected devices, will be in operation by the end of the same period². This is a significant opportunity for cellular IoT connectivity specifically - and the mobile platform economy generally - to create value.

The issue for cellular IoT connectivity is the conventional structure of 'traditional' mobile services. Individual mobile communications service providers are licensed on a national basis. The implication is that mobility is somehow a national, rather than a global activity. This requires additional overhead arrangements when mobile services are being accessed by a connected device outside the licensed jurisdiction of the home network operator. In a world that's constantly moving, many IoT devices are expected to be in permanent roaming mode, while other devices may be alternating between domestic connectivity and roaming modes. Such an example might be a connected car or a fleet of trucks with all its connectivity settings for one domestic mobile network operator - but then moves into roaming mode when it crosses an international border.

CROSS-BORDER IOT CONNECTIVITY CHALLENGES

IoT applications that require cross-border management can feature pure machine connectivity. This might include any device that could be either deployed in permanent roaming mode, or else is likely to be subject to frequent cross border movement - for example transportation, freight, logistics or automotive IoT applications. A second category of devices includes wearables, medical monitoring, or consumer devices - which travel with the human device owner.

The key challenge is about how to launch innovative IoT services that also take a pragmatic approach to the environment within which they're deployed. There's a need to balance innovation with efficiency. Alongside innovation, also being able to realise a fast return on investment on any IoT project is the primary objective for most new services.

Deploying seamless cross-border IoT services, where devices are either moving or in permanent roaming mode, creates issues related to connectivity, continuity of service, cost and control. If you want to launch a new IoT service that involves potential multi-country deployment or cross-border mobility, your options are limited. You could work with an existing IoT platform provider who then must negotiate multiple roaming agreements - not a core expertise in most cases. This would also be the case when working with a Systems Integrator, who might be able to assemble the technical infrastructure requirements but would still have to negotiate the cross-border connectivity arrangements. A local Mobile Network Operator would be able to manage the roaming arrangements, but would they be able to provide the control, analytics and support capabilities that add value to any IoT deployment?

¹ Source: GSMA Intelligence

² Ericsson Mobility Report 2020

TATA COMMUNICATIONS' APPROACH: MOBILE NETWORK AS A SERVICE (MNAAS) AND THE MOBILE PLATFORM ECONOMY

How does a mobile platform-based approach resolve these issues? The answer is by using the same principles as the digital platform economy. As the mobile platform enables an international mobile market structure, it ensures global data connectivity across multiple international mobile networks. At the same time, API integration supports new application development and customer portals to ensure control, policy enforcement, reporting, security and visibility.

When combined with global cellular IoT connectivity, these elements deliver operational efficiency as well as a speed to market advantage.

Tata Communications applies a combination of MNaaS on-demand principles together with the mobile platform economy. It has used this approach to launch its own platform - [Tata Communications MOVE™](#) - to provide network-independent global cellular connectivity for IoT. Tata Communications MOVE™ offers flexible commercial options that remove the rather rigid approaches often imposed on IoT services. Custom network level access policies, together with granular levels of access, provide extra security.

WHY TATA COMMUNICATIONS?

Maintaining connected IoT devices in permanent roaming mode is something that Tata Communications takes in its stride. It does this by virtue of its global signalling and associated roaming services, and network of mobile network operator partners providing local radio access, plus its own, globally deployed network infrastructure.

This asset combination means that Tata Communications can provide a network-independent, global virtual mobile network for IoT connectivity. There is no network operator 'lock-in' - and the globally-distributed network and infrastructure ensures that QoS levels and service continuity can be maintained.

The approach also provides secure connectivity to the private or public cloud via its dedicated APN and VPN-to-Cloud service. Time to market is reduced to days or weeks, rather than months, and OTA provisioning and eSIM capability are supported, together with an API suite for programmable service development.

Comprehensive BSS features take care of billing and settlement arrangements, while personalised services, including custom APNs, branding, and self-care portals, are also provided.

CREATING VALUE FROM GLOBAL IOT CONNECTIVITY

Thinking about what sort of global IoT connectivity services can be deployed helps to understand the potential offered by the mobile platform economy and Mobile Network as a Service (MNaaS). Any IoT service involving connected devices that could potentially move across national borders or be deployed in permanent roaming mode require the exact set of capabilities supported by the MNaaS model within the platform economy - as defined here:

- **Platform economy** - an online service market that links customers with suppliers and combines web services with advanced analytics to create an infrastructure across which the platform-based IoT market and associated ecosystems can operate
- **MNaaS** - this cloud-based route provides a platform for developing and managing cellular IoT connectivity applications via APIs, without the need to build and maintain a dedicated infrastructure

To realise the full potential of the mobile platform economy and the MNaaS concept requires another shift in thinking. This takes you to the point whereby mobility is considered in just the same way as the worldwide web and cloud infrastructure. For IoT, this means being able to access applications, connected devices and data via mobile regardless of arbitrary national borders or commercial access restrictions.

There are 800+ network based mobile communications service providers in the world. Most of them do not expose APIs to access their network or services. So using a mobile service platform to expose network assets via APIs could provide access to a vast range of rich mobile services on a global basis.

Your IoT service could use Tata Communications MOVE™ to access connectivity services, irrespective of where the device is located or which access network it's using. Tata Communications MOVE™ abstracts the complexity of cross border or permanent roaming IoT connectivity to a simple API call.

There is considerable value addition that can be realised by providing more advanced mobile network services, including QoS, policy management, billing, or analytics. Adopting this approach can help you launch your cross-border IoT service quickly and conveniently - to create new value for your business.

Tata Communications Limited
VSB, Mahatma Gandhi Road,
Fort Mumbai, 400 001
India

About Tata Communications

Tata Communications is a leading global digital infrastructure provider that powers today's fast growing digital economy.

The company's customers represent 300 of the Fortune 500 whose digital transformation journeys are enabled by its portfolio of integrated, globally managed services that deliver local customer experiences. Through its network, cloud, mobility, Internet of Things (IoT), collaboration and security services, Tata Communications carries around 30% of the world's internet routes and connects businesses to 60% of the world's cloud giants and 4 out of 5 mobile subscribers.

The company's capabilities are underpinned by its global network. It is the world's largest wholly owned subsea fibre backbone and a Tier-1 IP network with connectivity to more than 240 countries and territories.

Tata Communications Limited is listed on the Bombay Stock Exchange and the National Stock Exchange of India and is present in over 200 countries and territories around the world.

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