

WHITEPAPER

NEW VALUE FOR CONSUMER & INDUSTRIAL OEM WITH INTERNET OF THINGS

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Internet of Things (IoT) technologies give computing devices embedded in everyday objects the ability to send and receive data from cloud applications.

With a variety of tangible benefits for both consumer and industrial product manufacturers, IoT is a paradigm shift in technology which creates opportunities for the creation of better products. Products which can foster closer relationships with customers, create ancillary revenue streams and give manufacturers the real-time decision-making capability they need to improve products and operations and strengthen their competitiveness.

Across the Asia Pacific (APAC) region, executive leaders are recognising the real business value that IoT delivers, with 70% of Forbes Insights survey respondents recognising that IoT is fast becoming the competitive differentiator that will affect almost every industry. The study also found an inherent need for organisations to find a trusted innovation partner to support their IoT initiatives and achieve business objectives.¹

A NEW ECONOMIC PARADIGM

The IoT solution ecosystem has set the stage for what many are calling the next economics paradigm or the 4th industrial revolution. A world where billions of smart devices send and receive data in real time to cloud applications which help organisations increase operational efficiency, enhance workforce

productivity and form closer connections with their customers².

This economic disruption is not just about the data which these billions of devices will generate - IoT will serve as the brain of the new economy. Sensors placed in every machine and device will provide insights to organisations and help them automate, refine, innovate and grow their businesses ultimately leading to empowered consumers.³

For this vision to become a reality, organisations aiming to leverage the IoT revolution need to have the infrastructure ready to absorb, consolidate and analyse the data, and a network which ensures all their devices are always on and secured globally.

THE ROLE OF THE GLOBAL OEM

Global Original Equipment Manufacturers (OEMs) are at the forefront of the IoT wave due to their innovative research and design processes, their extensive production capacity and their ability to market their products through multiple channels on a global scale. OEMs can embed IoT technology at scale, which creates a substantial barrier to entry for any prospective competitors. These factors

culminate in creating a unique IoT strategic position for OEMs as they can gain and retain a larger share of their chosen target market.

With the APAC region currently leading the world with the fastest rate of IoT adoption⁴, global OEMs based in the region which are marketing and distributing their products worldwide are well placed to take advantage of the opportunities that IoT has to offer. IDC forecasts 8.6 billion connected devices by 2020 with global IoT expenditure expected to reach \$1.29 trillion USD by 2020, with APAC seeing the greatest IoT spending throughout the forecast period.⁵

However, the value of the data which is currently being collected is not being leveraged effectively and the full potential of this platform is not being realised. A recent study found that while nearly all (98%) of organisations that have adopted IoT claim to be able to analyse data, the same majority admitted to challenges in creating value from this data⁶.

The true value of IoT lies in the data which is being collected. Data which can be analysed to extract business value, improve product design and even generate revenue in some way and OEMs need to find a solution to leverage this opportunity.

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THE IOT OPPORTUNITY FOR THE GLOBAL OEM

IoT solutions are unique as each solution needs to be customised and aligned to the business and customer market the solution intends to serve. This need to address the niche nature of each target market segment and potential customer requirement, makes the creation of an IoT solution a complex, time consuming and risky undertaking. This potential risk could however be mitigated by deploying IoT solutions on a global, scalable, secured and flexible platform which has already been created and battle tested for this purpose.

There are two distinct manufacturing sectors where a solution focus can be applied and IoT platforms have already been developed for these two primary market categories which OEMs can leverage.

The OEM Consumer Segment

The consumer market segment offers products such as computing devices, wearables, home appliances etc. and the IoT play for OEMs manufacturing products which fall into this category is the opportunity to create revenue streams from connected devices and applications.

Although each IoT solution will be unique to each individual OEM, there are solution offerings which can have pre-built integrators and accelerators for the consumer and industrial markets.



The OEM Industrial Segment

The industrial market segment which addresses a range of industrial products and control systems, ranging from construction and heavy equipment to medical devices and HVAC systems. The opportunity for IoT solutions tailored to this market segment is to build better products and maintain these in the field more efficiently due to the potential data insights which can be obtained from connected industrial devices.

Deploying IoT solutions with relevance

When embarking on an IoT journey, OEMs active in each market segment should tailor their IoT solutions accordingly, taking the nuances of both segments into account and recognising the unique opportunities which exist for each segment type.

Although each IoT solution will be unique to each individual OEM, there are solution offerings which can have pre-built integrators and

accelerators for the consumer and industrial markets. These can assist with building out the roadmap and deploying the solution into the relevant market segment; allowing OEMs to concentrate on their core offering while leveraging these pre-built capabilities to help rapidly build and deploy effective IoT enabled products.

Security is of paramount importance in the IoT world

A secure IoT solution needs to ensure the full IoT ecosystem including the device, the network, the applications and the data, is protected from any potential security vulnerabilities.⁷ Any weakness in any part of the infrastructure could lead to a serious security breach. Compromised IoT devices can also be hijacked by third parties for nefarious purposes. IoT botnets have already mounted devastating DDOS attacks.⁸ In fact, 88% of organisations in Asia Pacific have experienced at least one IoT-related security breach, the highest incidence of any region in the world.⁹

THE BUSINESS OPPORTUNITY TO TRANSFORM “CONNECTED OEMS”

With global reach and a diversified product offering, global OEMs are well placed, due to their control over manufacturing and global distribution to end customers, to ride the IoT wave and realise the full range of benefits arising from the data being generated by this platform.

Understanding end customer requirements is the key to successfully marketing and selling products and services. Global OEMs who are actively engaged in the production and distribution of IoT enabled devices to both the consumer and industrial markets, have a unique opportunity in gaining

end customer insights from the vast amount of data their products are accumulating on an ongoing basis. Data generated by IoT provides a variety of use cases but ultimately the quality of the information being generated helps OEMs connect with their customers, produce better products and provide differentiating ancillary services, essentially creating a “Connected OEM”.

Not only can these insights help “Connected OEMs” produce better products, increase operational efficiencies and ultimately improve customer satisfaction, they also provide opportunities for the creation of alternative revenue streams from data being collected by end user consumer devices, as well as mitigating commercial risk.

Better Products

IoT can help OEMs build better products with business benefits which include opportunities for differentiation, a shorter time to market, reduced compliance risks, a decrease in cost, an increase in productivity, accelerated revenue growth, enhanced innovation and an improvement in overall product quality.¹⁰

Operational Efficiency

IoT data providing analytical insights can also help OEMs improve product lifecycle management and operational efficiency. Data derived from connected devices can help reduce the time taken to correct any faults due to a shorter detection cycle and can even anticipate failures. In this way IoT can help strengthen and ensure an effective preventative maintenance process.

Further operational efficiencies can be realised through actionable insights derived from data which can help improve future design considerations. In addition, timely data can result in operational cost savings through preventive action rather than the more expensive option of post product remediation.

Understanding end customer requirements is the key to successfully marketing and selling products and services.



Happier Customers

IoT-gathered data can also help OEMs increase customer intimacy through improved service delivery, real-time communication and enhanced support. IoT is also very effective in understanding and taking advantage of the customer journey, anticipating customer needs and helping to understand customer pain points.

In addition, an IoT solution can also help distribute feature updates and help remediate issues remotely. It can also be used to create an ancillary customer service where product performance and other related product information are shared with the customer.

Access Revenue Growth

Due to their ability to gather data post deployment, IoT enabled devices can provide OEMs with a source for generating new and innovative business models. IoT revenue generating models include: subscription, outcome-based, cross-selling and data monetisation.¹¹

The subscription model enables the global OEM to sell its IoT enabled devices using a similar model to software subscriptions. For example, OEMs could monetise the data and analytics their devices generate and sell this information back to the end user of the product.

Consideration must especially be given to the scale needed to successfully implement a global deployment strategy.

In an outcome-based model, OEMs could look at selling the value their product generates. For example, if the OEM manufactures generators it could create a revenue stream based on the electricity the device generates for the customer.

Cross-selling is another opportunity where IoT can help OEMs grow revenue. By analysing the data devices are generating, OEMs can target their customers with ancillary and complementary products and services to help them utilise the original product more efficiently.

We have already touched on monetisation in the subscription model. The data IoT devices are generating is not only of value to the OEM, but to the end customer as well. In some instances, this data may even be of value to a third party. For example, an IoT-enabled water pump's data could be sold to a local authority who is responsible for managing bulk water supply and billing end users.

Mitigating Risks

Risk mitigation comes down to having the right information at the right time. An early warning system, which alerts when a potential issue might be about to arise is a perfect use case that demonstrates where IoT data can help mitigate business risk due to device failure. The use of IoT in predictive maintenance is one part of the scope of this, but the use of IoT data to develop models about when and why equipment fails can also be a vitally important way in which IoT contributes value. It provides an insight to help OEMs to understand design or component issues and rectify them accordingly.

HOW OEMS CAN UNLEASH THE POWER OF IOT

IoT has an almost unlimited potential and many of the true benefits and innovations IoT has to offer have yet to be discovered.

Investing in IoT, like any other business decision, requires the necessary due diligence. Consideration must especially be given to the scale needed to successfully implement a global deployment strategy.

By analysing the data devices are generating, OEMs can target their customers with ancillary and complementary products and services to help them utilise the original product more efficiently.

A successful IoT solution needs a platform which is built for scalability, availability and flexibility and is secure. Such a platform needs to be able to not only manage large amounts of data, but it should also have the necessary tools to analyse data to derive information, draw actionable insights from it and present it in a user friendly and comprehensible format.

IoT is all about connected devices providing real-time data. Communications and connectivity is therefore a core component of any IoT solution. Consideration needs to be given to how devices are enabled to connect and communicate and



what communications medium or network they will use. For example, a communications strategy which uses shortwave-based communications, such as Bluetooth or Wi-Fi, will differ to a strategy where GSM is the chosen communication medium. GSM represents a cost-effective mechanism to connect devices effectively and reliably and is cost effective, pervasive, secure and reliable. Different connectivity media are suitable for different applications, so choosing the right communications medium is an essential component of any IoT strategy.

Global reach with local awareness is the cornerstone of a successful global IoT strategy. A successful global IoT connectivity service needs to be available everywhere but must remain locally relevant ensuring the infrastructure, communications and cost components of all markets are considered. Security is a key

31% of companies state that keeping IoT secure is a challenge and a further 31% state a lack of skilled staff is hindering their ability to rapidly launch their IoT strategies.

component of any communications medium and an important consideration which an OEM deploying an IoT solution needs to factor into its strategy. A secure IoT communications solution helps protect the entire IoT ecosystem comprising the device, the network, the data and the applications.

Ultimately, an IoT strategy needs to create and seamlessly orchestrate functions between the three main components of the IoT ecosystem. The device, the network and the communications channel all need to work seamlessly while ensuring the entire IoT environment remains secure. If we consider what components are needed to create a successful

IoT environment, the solution requires infrastructure, in the form of connected devices, network and a communications channel, together with a solutions platform in the form of a data repository, analytics and reporting engine and associated BSS/OSS applications.

Configuring components which make up the IoT ecosystem requires specialised skill, and to ensure a successful outcome, some experience in implementing these technologies. There are challenges however. 31% of companies state that keeping IoT secure is a challenge and a further 31% state a lack of skilled staff is hindering their ability to rapidly launch their IoT strategies¹².

Partnering with organisations who have appropriate knowledge and expertise can help an OEM successfully realise the benefits of IoT in a shorter timeframe. In addition, specialised IoT partners already have the necessary infrastructure in place which can help get the IoT solution deployed faster.

TATA COMMUNICATIONS AND MICROSOFT- JOINT INFRASTRUCTURE FOR THE GLOBAL OEM

Tata Communications and Microsoft combine all the skills, resources and infrastructure needed for OEMs to launch a successful IoT solution.

Tata Communications MOVE™ - Providing the next generation mobile IoT network

Tata Communications can help OEMs with the communications and connectivity requirements needed

to drive their IoT strategy. With a globally deployed IP backbone network, points of presence in all major markets and agreements with more than 600 mobile network operators for last mile access, connections with all major cloud providers and a robust security platform, Tata Communications has everything an OEM needs to connect its devices on a global basis.

Tata Communications MOVE™ is an innovative edge-to-cloud IoT connectivity capability that gives OEMs the ability to embark on a digital journey which allows their operations to become faster, more responsive and efficient, ultimately leading to a more intimate and personalised experience for their customers. In addition, this shift in business model can help reposition an OEM from being a pure hardware provider to becoming a service-based provider (XaaS), which opens new revenue opportunities.

Tata Communications also helps OEMs eliminate the complexity of creating, managing and implementing their own IoT platform. Tata Communications MOVE™ provides secure end-to-end communications for the service lifecycle of an IoT solution. Tata Communications MOVE™ global coverage provides a borderless experience, essentially eliminating frontiers that physically exist across networks within countries.

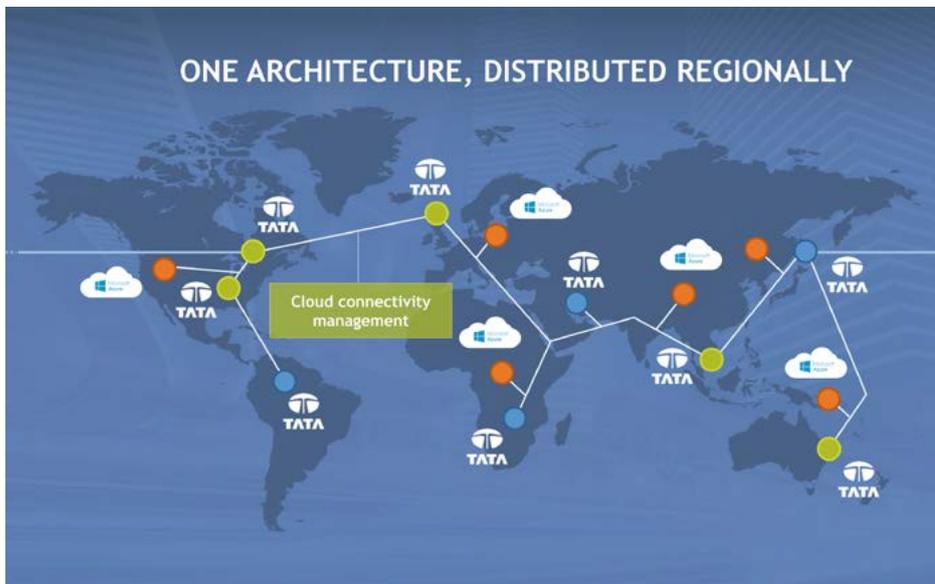
With zero-touch provisioning and a programmable software defined environment, Tata Communications MOVE™ provides a secure edge-to-cloud connectivity with optimum quality of service and transparency.

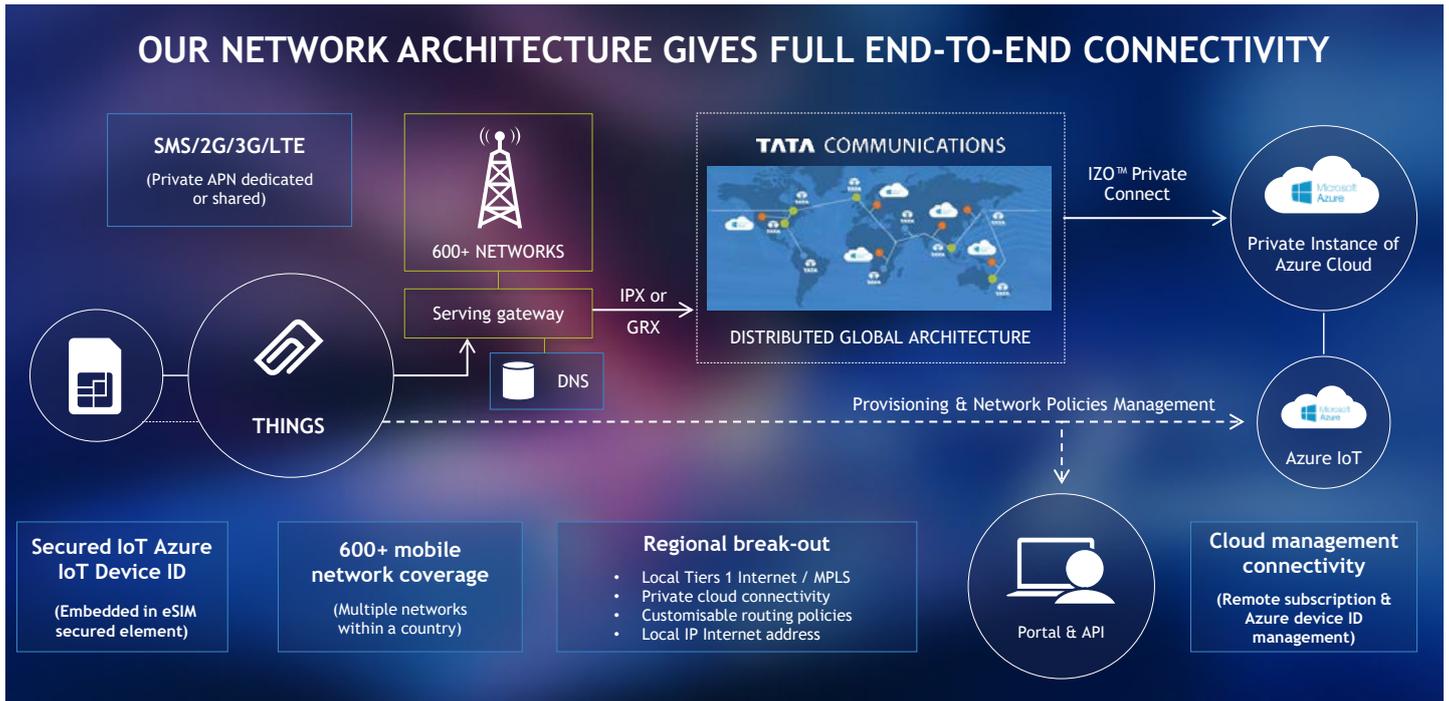
Microsoft Azure - Providing a global platform unlocking the value of IoT data

Microsoft Azure has a host of IoT-related offerings which can help OEMs with their IoT platform needs. From scalable data repositories which can handle vast amounts of data, to machine learning platforms and other analytical services, Microsoft Azure has every solution an OEM may need to store, analyse and report on IoT data.

From its global data centres located on every major continent, Microsoft Azure has the ability to scale any IoT solution and deliver the service to end customers in their local regions.

Furthermore, the technology investment made in building IoT-related services such as IoT Hub which can support millions of connected devices on a single instance, can





be scaled to multiple instances providing a robust global platform for an IoT solution of any size.

AI integration is seamless with native support for Machine Learning and with native, secure IoT edge support, Microsoft Azure is the IoT solution which brings AI and Machine Learning directly to the edge.

With a global reach, local relevance and innovative IoT applications and services, Microsoft Azure provides an IoT platform which is unmatched by even its closest competitors

Microsoft Azure + Tata Communications MOVE™ = Full Edge to Cloud Platform

The true value Microsoft and Tata Communications bring to the market is their proven ability to launch and deliver successful IoT

solutions. Their unmatched scaling capability and the investment made in researching and developing solutions in terms of platform, transport and cloud computing, make their joint platform the logical choice for global OEMs looking to launch a successful IoT strategy.

“The joint offering from Tata Communications and Microsoft Azure provides a truly scalable, available and secure IoT solution” said Anthony Bartolo, Tata Communications Chief Product Officer. “It provides a full edge-to-cloud platform which takes care of the transport, storage and compute resources required. Security and reliability are also built into the solution providing a private end-to-end and always on secured provisioning service. Intelligence is also built into the core of this joint platform.”

“Artificial Intelligence has the potential to amplify human ingenuity, improve lives and transform businesses. At Microsoft, we are enabling AI at the edge that securely scales to billions of devices with management from a single dashboard. Our Azure IoT platform empowers OEMs to support their customers with targeted, adaptive and innovative services that allows them to achieve more,” said Mike Chan, General Manager for Cloud and Enterprise Business at Microsoft in Asia Pacific.

Tata Communications and Microsoft are two industry giants which ensures this IoT platform is truly scalable. Both organisations bring economies of scale and a mature partner ecosystem which can help OEMs rapidly develop and deploy IoT solutions and applications.

CONCLUSION: NEXT STEPS

IoT is the platform for the next economics paradigm and will serve as the brain of the new economy.

Global OEM vendors based in the APAC region, marketing and distributing their products worldwide, are at the forefront of the IoT wave and are very well placed to take advantage of the opportunities that IoT has to offer. However, the value of the data collected by IoT enabled devices is not being leveraged effectively and organisations have yet to realise its full potential.

Connected OEMs who are actively engaged in the production and distribution of IoT enabled devices to both the consumer and industrial markets, have a unique opportunity in gaining end customer insights from the vast amount of data their products are accumulating on an ongoing basis.

IoT can help OEMs build better products, and IoT gathered data can help global OEMs increase customer intimacy through improved service delivery, real-time communication and enhanced support. Due to their ability to gather data post



deployment, IoT devices can also help OEMs build better products and provide OEMs with a platform for creating new and innovative business models such as subscription and outcome-based revenue generation, cross-selling and data monetisation.

Tata Communications and Microsoft are global leaders in IoT and together have all the skills, resources and infrastructure needed for OEMs to launch IoT enabled devices and equipment. Tata Communications can help OEMs with the communication and connectivity requirements needed to drive their IoT strategy, while Microsoft has a host of IoT-related

offerings which can help OEMs build a platform which can consume, analyse and report on their data.

The joint solution offering from Tata Communications and Microsoft creates a truly scalable, available and secure IoT platform which provides a full edge-to-cloud solution. It takes care of the transport, storage and compute resources required and is both secure and reliable.

Discover more at:

<https://www.tatacommunications.com/services/mobility/iot/move>

<https://azure.microsoft.com/en-gb/services/iot-hub>

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¹⁰ www.concurrent-engineering.co.uk/Blog/bid/89061/7-PLM-business-benefits-that-every-company-needs-to-know

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