A Decade at the Edge

The trends set to propel the way Asia thinks of, uses and values data

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Socio-economic factors will propel the region even further into the spotlight.

But if Asia is to truly maximize its value to global trade and cement its status as the centre of the world economy for the 21st Century – ensuring it remains an innovator and pioneer in the field of technology will be a key priority. So, what are the trends that look set to define Asia over this decade?

Life at the Edge

Get ready for life at the edge. If you thought the pace of innovation, transformation and disruption over the past five to ten years has been relentless. Buckle up, things are about to really speed up.

This decade will see us all living life at the edge and the biggest impact for enterprises will come from data at the "Edge".

Edge computing centres around running mission critical applications remotely and away from the datacentre. Traditionally, the majority of data has been captured locally and then carried back to a central datacentre for processing. However, this requires a tremendous amount of data flow to and from the cloud.

Data is the glue that brings together intelligent technology solutions. Until now, data has largely played a fairly basic role in the majority of businesses. For the most part, it's typically gathered, stored, secured and then made available for mainly operational purposes and gains.

A New Vantage Partners' 2019 Big Data and AI Executive Survey of C-level respondents confirms:

• 72 percent have yet to forge a data culture
• 69 percent have not created a data-driven organization
• 53 percent are not yet treating data as a business asset
• 52 percent admit that they are not competing on data and analytics

As billions of devices continue to be connected to the internet, using the cloud as a single centralised datacentre is no longer practical or sustainable – the data increase alone will begin to see data bottlenecks and networks slow. In fact, only one per cent of the traffic returns to the datacentre, meaning a massively reduced requirement for cloud computational power.

So, Edge computing turns this process on its head. The data is processed and analysed on the device or sensor and therefore reduces the amount of data flow to cloud. This reduces cost, physical footprint and power consumption at the centre – and response time, or latency, at the device.

Reduced latency or time delay is vital for a number of mission critical applications. Autonomous vehicles are the simplest example – the processing time between a moving car and a traffic light sensor can be literally, a matter of life and death.

The surge in edge computing will coincide with the dramatic rise in quantity of data and the rise of the Internet of Things (IoT). The IoT device explosion has some analysts predicting over USD $2 trillion in benefits over the coming decade – much of it as a result of the increased speed and bandwidth of 5G.

More devices, means more sensors and much, much more data. It is this that will drive Life at the edge.

Take the mining sector. Extraction is becoming more complicated and perilous as operators are forced to look deeper or extend into even more remote and inhospitable regions for the ores and minerals our modern lifestyles and businesses require.

It is here industrial IoT will be called on to provide solutions with sensors above and below ground at vast, harsh, remote sites increasing security, efficiency, productivity and protecting life.

• Health and Safety: personnel tracking, alarms, and health monitoring as well as above and below ground sensors to identify atmospheric conditions, unstable structures and air quality help reduce the risk of collapse or accidents.

• Staff and Site security: Geo location sensors for remote assets help prevent loss and theft, while ensuring the optimum use of assets and personnel. Remote CCTV also provides real time monitoring for added vigilance.

• Efficiency & Productivity: predictive maintenance sensors and AI on equipment reduce system downtime. A huge saving given the cost involved in service and repair in remote and harsh conditions – and even more critical as more and more sites rely on off grid power to run the operations, security and safety equipment and processes. A true mission critical application.

Many sites are also automating their processes and transportation – once again relying on data at the edge to ensure uninterrupted, efficient and safe real time operations.

And while all of these sensors provide discrete results – it is the combination of them via an interoperable hybrid cloud platform that drives true value.

Multiple sensors and analytics thousands of kilometres away, operating in harsh environments, operating at optimum performance, learning, improving and taking preventive measures – with minimal human interaction at the "coal face"

AI takes the strain

The increase in Edge computing will also fuel another nascent technology, Artificial intelligence (AI). Until now, AI has been used primarily for efficiencies and predictive analysis – especially relating to the datacentre itself.

But AI apps are thriving following breakthroughs in machine to machine and deep learning as enterprises shift away from traditional hardware architectures.

The quantity of data, generated at the network edge, puts great demands on data processing and structural optimization. Therefore, there is a strong requirement to integrate Edge Computing and AI, which gives birth to Edge Intelligence.

AI at the edge, transforms smart machines, into intelligent machines and information into actionable insight. AI, combined with greater local sensor data availability, also provides for intelligent IoT management.

So, a combination of Edge computing and AI will help drive the data centric enterprises of the future, but how will they maximise value for the business?

A Hybrid World

Of course, the cloud will play a key role in this ecosystem. Pulling all the insight intelligence will be made possible as enterprises turn to hyperconverged infrastructure (HCI) to coordinate and capture data at the source of creation, specifically to support high-performance use cases, such as AI.

HCI implementation and AI at the edge miniaturise computing, since HCI allows for technology to operate within a smaller hardware design. By 2020, it is expected that 80% of all devices will have an AI feature.

While the cloud has provided AI with the platform it needed to grow to the level of being available on nearly every technological device, the combination of HCI and edge computing will give AI the tools to truly evolve.

As the edge sensors capture and process the data, AI analyses it. However, the real value from an enterprise is not in the data from a single sensor, but in combining data sets from multiple devices to uncover patterns that can be used to predict future performance or issues. This is where AI, the edge and Hybrid cloud come into their own.

This confluence of technologies is accelerating the adoption and capabilities of all technologies as they drive value and insight to new levels – and hybrid cloud providing the environment for AI and Edge computing to grow.

The rise of the intelligent enterprise and nation

And that brings us to the enterprise itself. Smart business is not new. Enterprises have been harnessing big data and the latest technologies to improve efficiencies and reduce cost for some time. However, many of these initiatives have simply been project based – not enterprise wide. That will all change.

What will also change is that the technologies will expand beyond improving efficiencies and reducing cost – they will start to identify opportunities and value for the business. They will become intelligent enterprises.

These intelligent enterprises will harness the combined capabilities of Edge, AI, automation and the cohesion and interoperability provided by hybrid cloud. These self-learning, flexible and self-determining systems will learn and grow.

Businesses will become self-learning, flexible and self-determining, adopt next generation infrastructure to help realign their operations, personnel, business and even business models. They'll begin to see, analyse and utilise all of their data, wherever it sits or whatever it runs on.

Until recently, trying to get clear visibility and intelligence from every aspect of the business has proved elusive. The increased adoption of hybrid cloud the data provided from the Edge and AI will add granular detail to the organisation paving the way for real time, comprehensive, and actionable intelligence.

The intelligent enterprise will rise from the increased sophistication and changing preferences of customers and the need to ensure the company survives and thrives in a constantly changing world.

The Decade Ahead

So, as the decade continues more and more technologies and platforms will be deployed in a hybrid cloud environment. Yet managing data across an array of technologies will be challenging. And, even more so will be the ability to extract value from the data these technologies generate.

Clearly, there's some way to go to turn data into valuable information. But, over the next decade, we will see the beginning of enterprises achieving technological and operational transformation through advanced analytics, machine learning and AI capabilities. This will allow them to extract value and insight to form the basis on which to grow.

With IoT and AI set to thrive over the next few years, data volumes will only increase. To become an intelligent enterprise means tapping into a variety of structured and unstructured data to produce meaningful insights that will drive autonomy, innovation and importantly, inform business strategy too. Data and its use in intelligent decision making will be one of the critical goals for Asian organisations over the coming decade.

What is certain is, that the ability to combine multiple technologies to maximise value will become a common requirement for all enterprises – especially the intelligent enterprises.