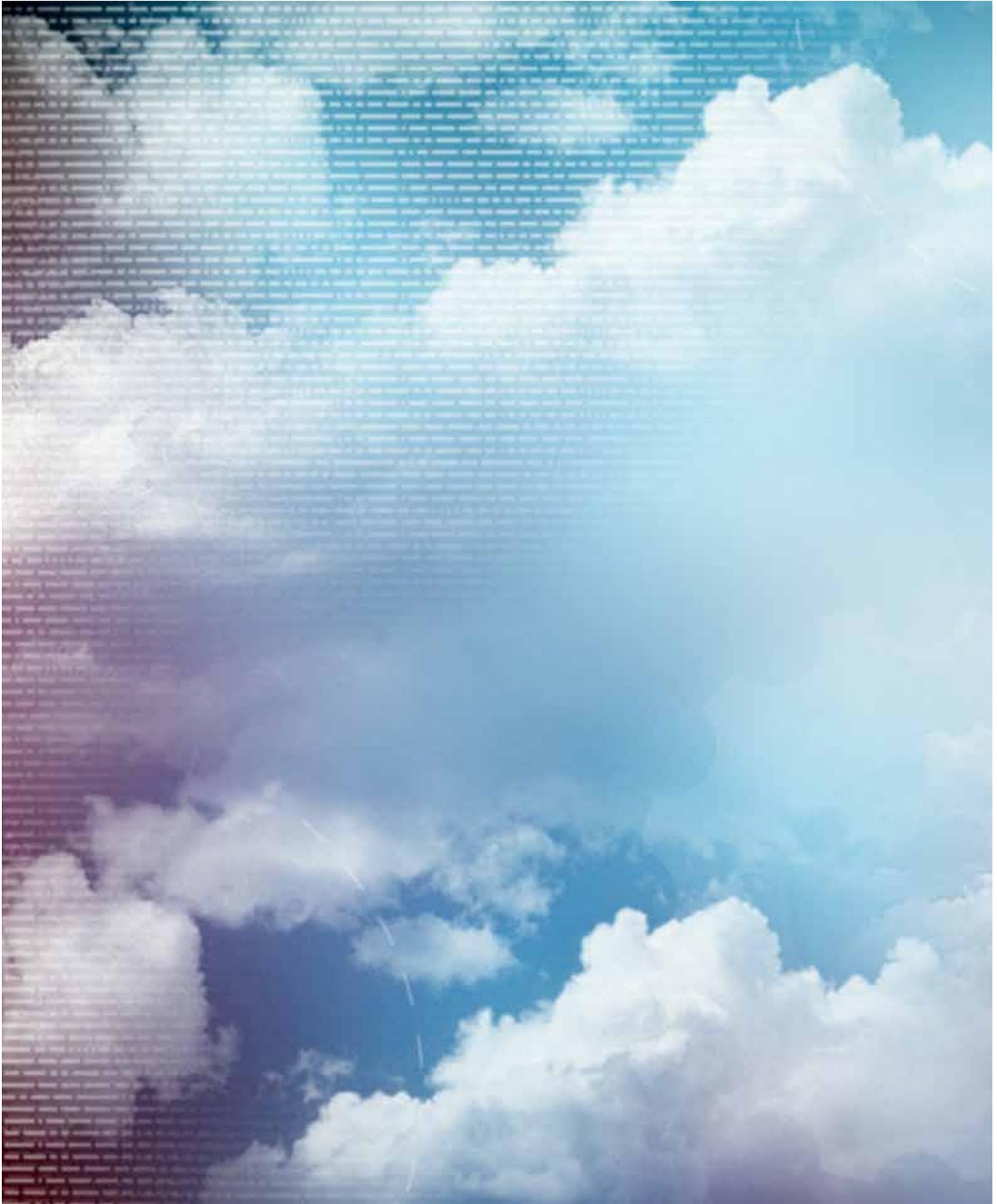


SPECIAL REPORT: INSURANCE AND THE USE OF CLOUD TECHNOLOGY



INTRODUCTION

WELCOME to this *GR* special report on insurance and the use of cloud technology, in association with Equinix.

The growth of cloud computing has been soaring up the agenda of (re)insurer executives across the world.

Here, *GR* provides in-depth articles on cloud topics ranging from how the technology will change the evolution and use of catastrophe models, the use of multiple clouds and how cloud technology can help standardise (re)insurer service.

One part of the world that can certainly benefit from cloud computing is the Asia-Pacific region. In particular, the growing Asia telematics motor

“The growth of cloud computing has been soaring up to the agenda of (re)insurance executives across the world”

insurance industry can benefit from the new hosting technology – more on this later in the report.

Of course, the (re)insurance opportunities presented by cloud computing are much broader than can possibly be covered in one report. Still, the topics covered here certainly cover some of the biggest issues for (re)insurers interacting with the new technology, as well as some of the emerging risks. We hope you enjoy the read. ■



Sam Barker
Deputy editor, *GR*

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Unlocking the black box

The next generation of cat models promise to bring greater choice and transparency

A new generation of catastrophe risk models are coming online, promising greater transparency and choice. The Oasis Loss Modelling framework, RMS(one) platform, AIR's Touchstone, the Global Earthquake Model and Karen Clark & Company's (KCC) Characteristic Events are just some of the offerings taking cat modelling to the next level.

For a long time the cat modelling universe was dominated by just three agencies: AIR, RMS and Eqecat. Use of the models took off following Hurricane Andrew in 1992. Initially focused on US earthquake and windstorm, European windstorm and Japanese wind and quake, cat modelling has slowly broadened by peril and geography.

As computing power and underlying hazard information has improved, new updated models have been released, sometimes with a significantly altered view of risk. RMS Version 11 US windstorm model for instance, used claims information to increase its view of the potential inland damage from hurricanes.

Despite the updates complaints about the models have persisted. The expense, monopoly of the three main vendors and lack of transparency into the assumptions that sit behind the model are causes of frustration.

Each time a major event occurs the models are found wanting in some way. Whether the failure to capture the impact of Hurricane Katrina's storm surge, category 2 storm Ike's ability to wreak havoc so far inland or the impact from secondary earthquake perils, questions are asked about the level of uncertainty in the models. The providers are keen to point out that models are just tools and not exact approximations of reality.

The lack of models in some parts of

the world is another challenge. Major loss events, such as the Thai floods, have occurred in parts of the world that were not modelled. Without tools to manage their aggregations, some insurers have found been disproportionately impacted by these events in so-called cold spots.

Some companies have opted to use their own proprietary models or to blend the output of two or more vendor models. It is believed such an approach can offer the middle ground and buffer the impact of a significant model update.

New kids on the block

Now a group of new players is coming onto the scene. The next stage of the journey is about offering greater choice, openness and insight into model uncertainty as well as creating a broad consumer marketplace for risk models.

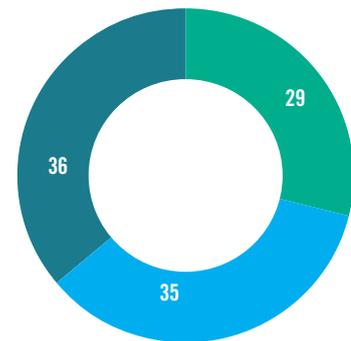
A not-for-profit organisation, Oasis is already punching above its weight with a membership of over 40 (re)insurers and brokers.

Oasis recently joined forces with Equinix to provide a hosted solution that Oasis project director Dickie Whitaker believes will be more user friendly. "In our world we offer flexibility, which is the ability to customise Oasis," he explains. "So one of the issues for people is which version of the software do they use? There's lots of choice and getting stuff like that integrated with IT departments is a challenge."

Another open source initiative is the Global Earthquake Model (GEM) Foundation's OpenQuake model, which officially launched in January. It is the product of a collaboration of over 300 international earthquake experts.

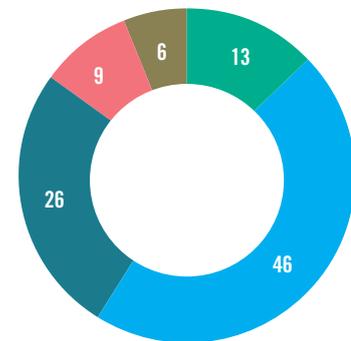
The advances in catastrophe models might be disruptive (and possibly expensive) in the short-term, but the improvements they promise can only be a good thing for the industry in the future. ■

Do you get value for money from your catastrophe models? (%)



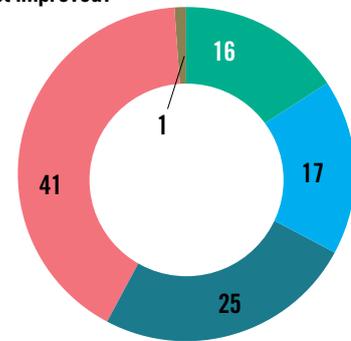
■ YES ■ NO ■ UNDECIDED

How many catastrophe models does your company use?(%)



■ NONE ■ ONE ■ TWO ■ THREE ■ FOUR OR MORE

How could existing catastrophe models be most improved?



■ COVER MORE PLACES ■ LOWER PRICES ■ BETTER ACCURACY ■ COVER MORE PERILS ■ BETTER USEABILITY

Source: GR

Spread of the cloud

Challenges of the digital expansion for (re)insurers

Despite (re)insurers' reputation for reluctance to engage with new forms of technology, a growing number of firms are taking advantage of the cloud.

By 2016 cloud computing will become the bulk of new IT spend and by 2017, nearly half of large enterprises will have hybrid cloud deployments, according to technology research firm Gartner. Moving computation, software, data access and storage resources from a traditional server-based platform to the cloud brings numerous advantages, including scale, efficiency and cost-effectiveness.

"There are benefits around the pure play," says PwC partner Dan Cole. "You're not paying for a set of infrastructure sitting there idle for periods of time - you're paying purely for what you use so it's much easier for businesses to predict their costs because they have a scalable view on the implications of cost based on transaction volumes."

Many insurers are already using public clouds (services offered by Amazon, Microsoft and Salesforce among others) for non-core office and support functions, such as email, HR and customer relationship management. Others have taken the next step and are writing applications to the cloud, using cloud-based infrastructure to support core applications.

Varied approaches

"If you take a more technology-centric approach to cloud working through infrastructure type services there are still a lot of benefits to be gained," says Cole. "One major global insurer has consolidated into a private cloud all their major infrastructure and they've seen large benefits to that. They now have a global management framework around all their infrastructure and they have



"There are benefits around the pure play"

the flexibility to either consolidate or not depends on the specific needs of a business unit."

For insurers reluctant to part with their key data, there is a hybrid approach that combines public and private cloud. "What I'm finding among our members is they are not putting all their critical data into the cloud," says ACORD chief executive Gregory Maciag. "They are very selective about what they do. They are using the cloud for customer service things - back-office accounting and so forth - taking parts of their infrastructure and putting it in the cloud."

"They are also using facilities where they are establishing their own cloud if you will," he continues. "So an insurance company can create a cloud on its own and then go to an Amazon that provides the hosting services. Those servers have multiple backups in different countries and essentially a private cloud."

There are challenges surrounding the use of multiple cloud service delivery models as it can affect the portability of

data, leaving insurers at a disadvantage.

The ability to capture structured and unstructured data in the insurance industry has never been more important. As insurers look to consolidate their data or integrate systems from newly-acquired companies, there are operational efficiencies and risk and accumulation management insights to be gained.

"We're a siloed industry," says Maciag.

"At ACORD we have industry standards including insurance industry glossaries and data models and component models that support data portability when implemented," he continues. "We are a non-profit industry organisation with a mission to promote interoperability across systems. The interoperability of data will offer important insight with which to cross- and up-sell across different classes of business, offering competitive advantage to those carriers able to exploit this. This is a fairly straightforward process in the transactional part of the business. The next step is capturing unstructured data - or big data - for analytical purposes.

Xchanging's Data Capture Service (DCS), led by the Lloyd's Market Association, is one initiative currently underway to make more of big data. "I would expect many leading insurers are already using large quantities of unstructured data," says Cole. "Using the cloud within that environment means you can host large volumes of data and analyse it in ways that simply wasn't possible five to ten years ago. Aggregating that unstructured data in a way that it makes sense for insurers will become part of the standard practice for insurers. It will become part of their DNA."

So as the (re)insurance uptake of cloud computing is set to grow and more important processes are predicted to be hosted there, canny firms can gain a competitive advantage by getting there first. ■

Going global, thinking local

Legacy systems and London insurance

As the (re)insurance industry becomes increasingly global, technology holds the key to competitive advantage.

For nearly 330 years the London and Lloyd's market has enjoyed a reputation as the leading centre of international specialty (re)insurance. The talent located within the square mile encompassing Leadenhall and Lime Street, face-to-face nature of transactions and history of innovation has seen the market flourish for over three centuries.

But change is afoot. There is increasing competition from other global hubs such as Bermuda, Zurich and Singapore as well as from alternative capital in the reinsurance space. This has driven the need to embrace new, more efficient ways of transacting the business and to challenge some of the entrenched 'Londonisms' – unique, and often inefficient, regional traits to doing business.

"London truly is the best in the world at products," says Sequel business development director Ian Summers.

"We'll write anything here because we have a marketplace where the underwriters keep feeding off each other and creating better and better products.

"Unfortunately there are many Londonisms, which mean you have to have bespoke technology or a London broker in the chain, we're expensive and its inefficient to process things."

Time for an overhaul

The need to deal with legacy systems, embrace e-placement and lower the cost of transacting the business has never been more critical. This was evident in London Matters, the hotly anticipated Boston Consulting Group study commissioned by the London Market Group (LMG). Of the six opportunities it identified for London to enhance its position, the following three of these were specific to technology:

- Reinforce London's strength in expertise based underwriting with improved analytical techniques;
- Break down barriers to (re)insurance and intermediation and develop the distribution network, creating appropriate local presence, to allow

London to compete more effectively in high growth markets, and

- Reduce the cost of doing business to increase competitiveness, particularly for more commoditised risks.

Significant steps have been made to modernise the market in recent years. The market has risen to the challenge of contract certainty and electronic endorsements, aiming for 100% e-endorsements in the aviation arena.

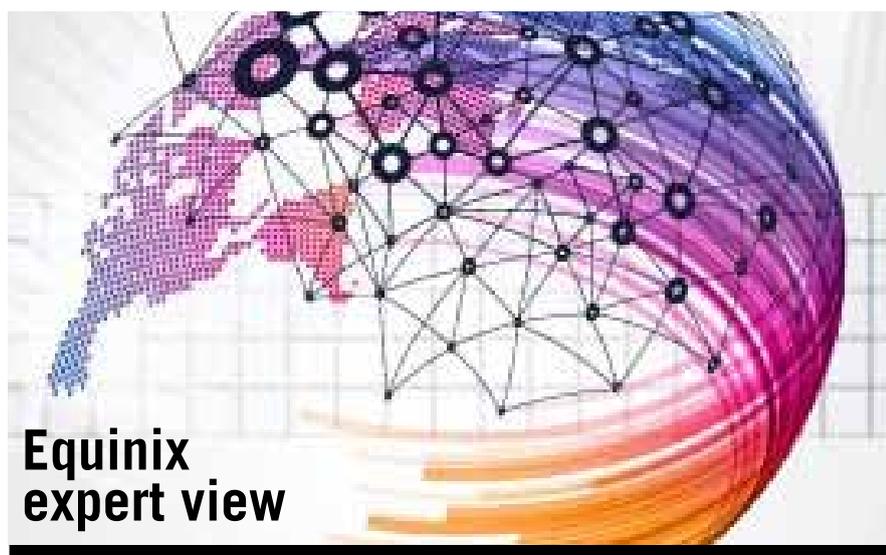
One of the projects beginning to bear fruit includes the Central Services Refresh Programme (CSRP), a collaborative programme that was relaunched after its earlier incarnation, the ill-fated Project Darwin, failed to capture hearts and minds. The CSRP is looking to upgrade back office processes and to share information between brokers and insurers using electronic messages to ACORD standards.

It is hoped this will make processing the business easier and more cost effective, particularly as London continues to expand its global reach. Lloyd's Vision 2025 has a stated ambition to tap into growth markets. Meanwhile, the rapid M&A taking currently underway in the market is creating a new generation of global (re)insurers that will need to service clients in the same way in multiple markets. Brit's deal with Fairfax and Catlin's with XL are some of the most recent examples of tie-ups between international insurance firms.

As Summers explains: "With globalisation you want to be able to get your London market product out to the clients wherever they may be around the world," he continues. "So we're looking at removing some of these barriers to entry and replacing those with new modern technology and using the ACORD standards which are global."

"Our clients today want local delivery of world-leading products and capacity," he adds. "So we're putting all the products and services on the web through online portals and rating engines quote-and-buy facilitates. So London all of a sudden it has the best products and the best underwriters and those products are now available around the world." ■





James Maudslay, Global Head,
Insurance – Equinix Inc

Cloud computing, already in regular use by many industries and sectors ranging from oil and gas to media and content providers, is beginning to win acceptance in the financial services sector, an area that due to the levels of regulation already in place finds adoption of new technologies such as this more challenging.

At the heart of this lie fears over areas including security, storage locality, access or loss of control, which are all services regulated businesses need to be mindful of. Yet all of them can be addressed using appropriate procedures, techniques and infrastructure which will allow such companies to respond to the compliance issues they face. The infrastructure needed to access cloud services will resolve many of them. There are three sections to this:

- The essential data links to cloud
- The location of users, and
- The number of cloud services available

It is vital that companies consider how to address these problems in planning

their cloud deployments. Secure links from an organisation to its services and data is an obvious consideration, and if an organisation is using just one cloud, it is a relatively simple task to arrange secure dedicated links between an office location and the cloud.

However, if a company has multiple locations or multiple cloud services, this issue increases. Where an organisation has both features, the problem would rapidly become one where the number of lines required would be both unmanageable and expensive.

To resolve this, companies should consider the use of two infrastructure services, which will answer all the concerns above. Firstly, to resolve the problem of taking advantage of multiple clouds, using an exchange such as the Equinix Cloud Exchange provides a mechanism for consuming the best solutions. In a cloud exchange, the user buys an access route that in turn gives them direct connectivity to all cloud services available via the exchange. This means that the user buys one secure link to the exchange, and then accesses their cloud (or clouds) of choice deciding on matters such as access speed or bandwidth – decisions that should be available to the user via a portal, with the ability to add, remove or amend connections dynamically and in close to real time.

Using such an exchange, pay as you consume becomes a reality, and higher levels of security come as standard, as access does not employ the internet at any stage.

The second area, the location or users

or offices, can be similarly resolved using regional access points.

Here, users will need to ensure they have access to hubs, the distribution of which needs to mirror the spread of the organisation as closely as possible. The hubs then take care of high-speed, secure access to individual cloud services or cloud exchanges, as well as dealing with access to services built to respond to data protection or data sovereignty requirements.

Careful consideration of the means of accessing cloud services will become the foundation of a successful cloud usage policy by providing the means to actually use the cloud services desired in a secure and consistent way, regardless of where the user is based, and the data is stored. ■

Equinix, Inc. (Nasdaq: EQIX), connects more than 4,500 companies directly to their customers and partners inside the world's most networked data centers. Today, businesses leverage the Equinix interconnection platform in 32 strategic markets across the Americas, EMEA and Asia-Pacific.

About Equinix in the Global Insurance Markets

The insurance industry today faces increased complexity, more regulation and heightened consumer expectations, and that's straining IT systems, which must adapt in an efficient and cost-effective way. By moving IT infrastructure inside Equinix's global data centers, insurers gain access to leading colocation facilities, guaranteeing the highest levels of data center security and operational reliability worldwide. And our innovative Insurance Data Exchange ecosystem is an interconnection platform that simplifies the sharing of data between multiple stakeholders in global insurance markets—from life to property and casualty. Market participants directly connect to one another there, enhancing the performance of risk modeling systems and the consumption of cloud technologies, while lowering IT, bandwidth and network connectivity costs.

www.equinix.com.



ASIA PACIFIC SECTION



Finding the middle ground

Turning point for Asia data protection

Insurers adopting cloud solutions are navigating an increasingly complex data sovereignty minefield in Asia Pacific

Last year was a turning point for data protection in Asia. Several countries adopted new rules governing data and privacy, while two massive breaches served as cautionary tales for international companies that collect and hold data.

In South Korea, the names, social security numbers and credit card details of 20 million South Koreans - almost half the population - were stolen by a computer contractor working for a credit scoring firm.

Meanwhile in Japan, education services company Benesse was forced to issue a public apology and is facing a lawsuit after a rogue employee leaked the confidential information of at least 7.6 million people (possibly as many as 20 million). "There have been high-profile breaches in the region and as a result there's an increased scrutiny of data protection laws," says Norton Rose Fulbright senior associate Jeremy Tan.

In Singapore and Malaysia, new European-style privacy laws came into force last year, while in China, consumer protection laws were amended to include data privacy principles. In South Korea, steeper financial penalties were introduced for failing to protect sensitive information. "Data sovereignty is a hot topic in Asia because there's been a whole slew of data privacy laws that have come into force in just the past three or four years," says Tan.

"With more data protection laws the issue of data sovereignty arises," he continues. "Unlike in the EU, the laws in this region are not harmonised so they have differing standards and differing expectations. That makes it a bit tricky for insurers when they want to adopt cloud, because that cloud inevitably

involves the transferring of data from one jurisdiction to another."

"Data privacy at least in Asia has a very consumer protection agenda," he continues. "With insurers collecting more and more personal data there will be greater scrutiny on the users of cloud computing and collectors of personal data on the whole."

From an insurance company perspective, there are real risks in transferring data into a jurisdiction that has strict data privacy legislation. Taking the US as an extreme example, retail giant Target, which had up to 40 million debit and credit card numbers

"Data sovereignty is a hot topic in Asia"

stolen last year, has so far reported data breach costs of up to \$248m.

A survey last year from ResearchNow showed that 25% of UK and Canadian businesses plan to pull company data out of the US. This is partly a result of the NSA snooping revelations, revealed by Edward Snowden in 2013, with concerns raised around security, compliance and privacy in the cloud, particularly for businesses in highly-regulated industries.

Hybrid cloud solutions

One possible means of navigating the data sovereignty challenge is a hybrid cloud solution. Insurers that want the ability to tap into the scalability and cost efficiencies of a software as a service model can develop dedicated resources alongside this to store secure customer data.

"Only a couple of weeks ago we were

working with a European client looking to move part of their application suite to the cloud," says Cole. "They were nervous about the US jurisdiction laws and what it meant for their data. We came up with a compromise solution that keeps all their confidential private data internal to their organisation and encrypted, while they're also getting the benefits of the cloud solutions out there."

"As the new data privacy laws in Asia bed down, critics argue regional businesses could be hurt by the regime. The ability to develop and exploit innovative electronic and mobile commerce platforms, engage new technology service providers and reap the benefits of processing centres in high-tech hubs could be curtailed by the national data walls cropping up.

"In Singapore the insurance regulator has issued a consultation paper on proposed changes to outsourcing guidelines," says Tan. "They have made it clear that they are looking at things like data segregation and data security. These are things that make the cloud less palatable as an option, because one of the benefits of having a cloud is to have all your data aggregated."

"It's really about getting an understanding of the lay of the land and having good relationships with the regulators - getting feedback and their view on how they would react to certain cloud offerings," he continues. "Private cloud solutions are definitely looked upon more favourably simply because it has the perception that it's more secure."

"There is a view in the market that it's about the regulators and adopters of cloud technology coming to a sensible middle ground, where the regulators are confident their prerogatives are met and at the same time the insurers are able to reap the benefits of cloud," he concludes. ■

At the starting line

Asian telematics set for growth

It is early days for telematics products in the Asia Pacific region. But the market has the potential to overtake the rest of the world in just four years.

The next few years will see increasing demand for vehicles equipped with telematics technology in countries such as China, India, South Korea and Japan. Many of these countries are anticipated to set up regulations related to telematics, according to a report from Markets and Markets, which predicts that the global market will grow by \$45bn by 2019 at a compound annual growth rate of 35.54%.

“Asia specifically offers a huge opportunity for telematics-based products in the personal lines space where there has been little offered as yet,” says Celent analyst Craig Beattie. “Gradual liberalisation of motor insurance terms and rates by regulators in some countries will likely bring about the development and progress of telematics insurance products into the market in the next three to five years.”

A pivotal deal

To date, telematics has generally gained a foothold in countries where insurance is perceived to be expensive, such as Japan. In December 2014, Japan’s MS&AD [Mitsui Sumitomo and Aioi Nissay Dowa] - Asia’s largest insurance company - announced it had agreed to buy a controlling stake in UK telematics insurance firm InsuretheBox and its parent company, Gibraltar-based Box Innovation Group, from Lloyd’s insurer Catlin.

The deal was a significant one, according to Japanese analysts at Celent Consulting, as it is anticipated to spark the expansion of telematics within Japan. Through MS&AD’s partnership with Toyota, the insurer intends to deliver “user based telematics solutions for key clients as well as the wider market”.

Last summer, Toyota released T-Connect, a telematics system that uses automated voice activation and allows open-source third-party apps to be downloaded. Lexus also received an upgraded of its G-Link system, featuring onboard high-speed internet and data communications modules to connect the car to an outside internet service.

Outside of Japan, China is a market many are watching with great interest. With the world’s biggest motor market, vehicle sales in China are forecast to grow by seven percent this year, with total deliveries exceeding 25.1 million vehicles, up from 23.5 million in 2014. New regulations are expected to drive telematics growth, albeit primarily in fleet vehicles.

Recently the Chinese government made it mandatory for fleet vehicles to come with pre-installed satellite positioning and telematics systems in order to better improve fuel economy and vehicle wear. In the consumer market the connected car is becoming

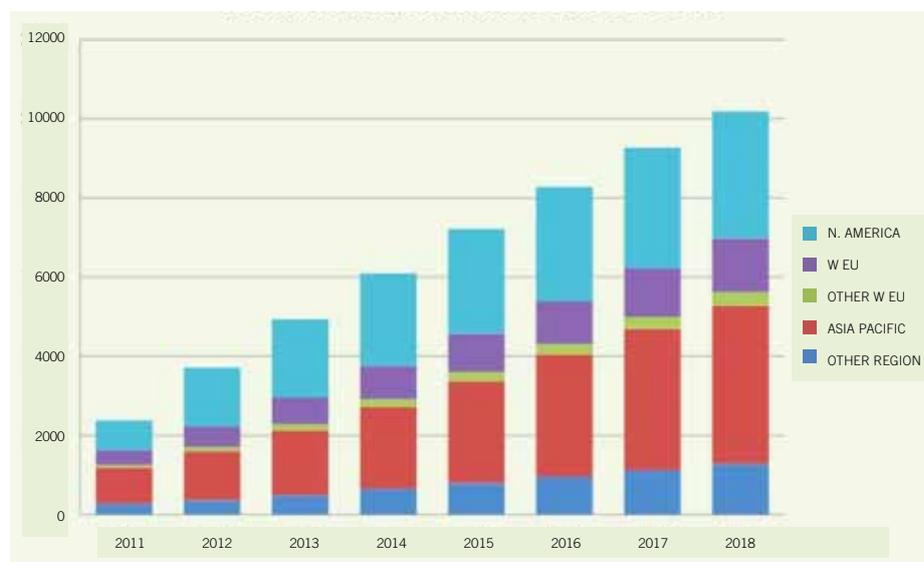
increasingly desirable, with research finding demand in China for vehicles with embedded telematics surpasses even Western auto markets.

“Just as China is leading global smartphone and e-commerce trends, we find that Chinese consumers are also progressive in bringing technology to automobiles,” says Pat Gardiner, president of global automotive division at research firm Nielsen.

So far consumer facing services have primarily focused on navigation, positioning and security, such as remote anti-theft alarms. “There is no telematics insurance available yet, though telematics service providers are actively seeking partnerships with insurance companies,” notes Celent’s Hong Kong-based Asian insurance analyst Wenli Yuan.

“If the right business model and balance of interests could be found, telematics service providers and insurers could achieve mutual benefit,” she adds. ■

TELEMATICS: AFTER MARKET UNIT FORECAST



SOURCE: RESEARCH DATA FROM IHS WHITEPAPER “EMBEDDED TELEMATICS IN THE AUTOMOTIVE INDUSTRY” NOVEMBER 2011

What is the future of the Asian telematics industry?

THE BIG QUESTION



Jonathan Hewett, Group CMO, Octo Telematics: “Asia represents a nascent opportunity for the telematics industry. Many of the market drivers are present in the form of a growing insurance industry, and Original Equipment Manufacturers (OEMs) who are keen to promote their connected car programs.

“We have also found from our research that providers are very focused on developing winning customer value propositions through incentive programs and improved safety and assistance services.

“Indeed, we believe that those areas that relate to “crash” and “claim” services could be the starting point for insurance telematics.

“Insurers are recognising that instant crash notification from an aftermarket black box or connected vehicle can deliver not just an improved customer experience, but also greater efficiency and cost saving through the First notification of loss and claims value chains.

“Experience in other markets suggests that once these benefits begin to positively impact loss ratios insurers gain a greater appetite for the data and then go on to begin to address user base insurance type models and propositions

“In some Asian markets dynamic pricing will need legislative changes. But we think that these will come in time, given the consumer benefit that we believe can result from telematics enabled policies.”



Paul Miller, General Manager of SSP Asia Pacific: “SSP were among the first telematics providers into Asia Pacific. A key part of our success has been putting data at the fingertips of consumers, whether they want to improve their driving score, keep track of their car or reduce fuel consumption.

“Our view is that telematics adoption in the Asia region will grow strongly in the next few years, similar to what we have seen in the UK and Australia.

“Asia has some of the best broadband infrastructure and mobile networks in the world so targeting digital natives who are used to managing their financial world online could be key to the success of telematics in the region. Furthermore, smartphone based telematics solutions, which don’t require a black box, could well be a way for insurers to dip their toes in the market.

“The tried and tested approach in developed markets has been to target young drivers looking to reduce their premiums, but cultural differences, network infrastructures and legislative frameworks make Asia a completely different market. For instance, we know that the over 65s in the UK want premium telematics services focusing on theft tracking or insights on car wear and tear, could this be the solution in Asia? Telematics in Asia needs to find its niche.”



Rade Musulin, Actuary in Sydney, Australia: “I expect that Asian insurers will adopt telematics technology soon for motor insurance. They have two significant advantages. First, Asian firms can learn from insurers in places like the US that have already been using this technology. Second, relatively low insurance penetration means that Asia has fewer existing policyholders who can be dislocated if rating plans shift from traditional classifications to more individualized premiums reflecting the driver’s characteristics. And relative to the US most Asian countries have far less rate regulation, making it easier to implement changes.

“Places like Hong Kong are well suited for next generation telematics such as “driverless cars”. I expect to see this implemented in Asia quickly once it is available.

“Also remember that telematics can also be used in settlements by clearly showing what was going on in vehicles before a crash. This may be of considerable value in places where police reports and other claims information are hard to obtain.

“One final consideration is how telematics may create new exposure for manufacturers. Asia produces many components in vehicles, and as telematics are more heavily relied on new sources of liability may be created. “For example, could a cyber attack cause large numbers of cars to simultaneously malfunction, leading to a new kind of catastrophe exposure?”



YOUR STRATEGIC CENTER FOR GLOBAL INSURANCE

Equinix's global IBX[®] data centers provide a neutral meeting place for the world's insurance community. Our data centers form the foundation for competition and collaboration among global insurance market participants, data networks, modeling service providers and telematics vendors to create the world's leading insurance ecosystem.

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