"There are huge mathematical advantages in doing nothing"
- Charlie Munger, American billionaire, Vice-Chairman Berkshire Hathaway

Welcome! This month we feature cybersecurity in particular, government action and the growing challenge of the software supply chain.

With the change of government this week, there has been sufficient commentary and reflection. However, my hope is that the new government addresses (at least) two critical technology-related issues:

- The financial viability of telecommunications operators by reviewing OTTs' (over-the-tops) free, uncontrolled use of national infrastructure. Applying more focus here will relieve some pressure on the nbn Special Access Undertaking (SAU) under review. The current status is unsustainable.
- Elevating technology awareness and capability into Australian *culture*. This needs to accelerate across all sectors.

Congratulations to clients, Phylum[1] and Canopus[2], for successful Series A capital raises.

- Phylum raised US$15m in an investment round led by ClearSky, with strategic contributions from Atlassian Ventures and SixThirty Ventures. LINK
- Canopus raised A$10.3m with the investments led by Pentanet. LINK

Good outcome and great timing as raising early-stage capital is going to get a lot tougher from here on. Well done to both!

1) *Phylum: AI platform that de-risks software supply chain*
2) *Canopus: Terabit-scale AI platform for application and network performance analytics*

Previous Newsletters, including this one, are available on our site in pdf HERE

CONTENTS:

ASIC bares its teeth, Federal Court sets new ($750k) precedent for cybersecurity accountability

"This is the first time that ASIC has exercised its enforcement powers for a company's failure to have adequate cybersecurity and cyber resilience risk management controls"
– Allens, leading law firm

In proceedings brought by the Australian Securities and Investments Commission (ASIC) against RI Advice Group, the Federal Court found poor cyber security practices were in breach of the Corporations Act. RI Advice must pay $750,000 in costs to ASIC and take certain remedial steps under ASIC supervision.

ASIC is following a path well-trodden by its overseas counterparts and this is not expected to be a one-off.

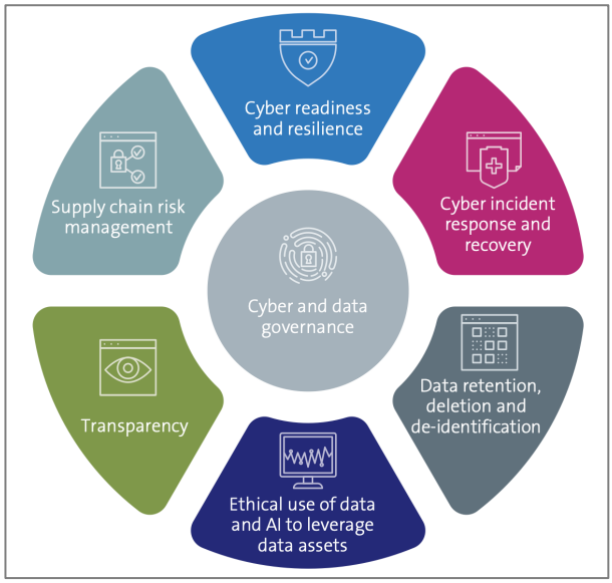
We are past the warning stage, the legal precedent has been set.

Don't panic! Cyber guide for boards and senior management - a legal perspective

"Directors may be personally liable, and face disqualification and/or reputational damage, for cybersecurity failures that result in regulatory breaches (direct and ancillary)" *– Allens, leading law firm*

It's not just companies that are on notice – individual board directors are too. According to law firm, Allens, responsibility for information security and data governance starts and ends with the board and senior management.

Allens recently published a handbook designed to help boards and senior management navigate their duties and liabilities relating to information security and data risk. LINK



Key Regulatory Trends. Source: Allens

650% increase in software supply chain attacks aimed at open-source code in 2021

LINK

Source: The State of Enterprise Open Source: A Red Hat report, 22nd February 2022

***The problem**:* More digitisation means more software - predominantly open-source software (first graph). According to Red Hat, 89% of IT leaders (second graph) believe enterprise open source is as secure or more secure than proprietary software.

Really?! (Please note the source).

In fact, open-source software is primarily *untrusted* code developed via crowdsourcing by strangers (!) from all over the globe, which creates a massive attack surface that is being actively exploited by adversaries more than ever.

To make matters worse, there are nearly ten times as many software developers as there are cybersecurity professionals, with projections of massive growth over the next six years.

Getting worse: Software supply chain attacks are not a new threat, they are just increasing in volume and cunning. Some of the major ones include XcodeGhost (9/2015), KeRanger (2/2016), NotPetya (6/2017), CCleaner (9/2017) and of course SolarWinds (12/2020) which made international headlines due to its devastating impact.

Solution: This does not mean you need to stop using open-source. However, it does mean that you need to not trust the open-source, vendor-provided and/or upstream code your organisation is using and to adopt the right tools to help check this software in the CI/CD (continuous integration/continuous delivery) pipeline. Checking includes numerous aspects such as vulnerabilities, authors, malware detection, OSS static analysis, package/repository linkage, licencing and more.

Strategic importance: The strategic importance and challenges of open-source security went all the way to the White House in January. Officials met with executives from Amazon, Google and Microsoft to address this important issue. Although nothing of significance was published, it is clear that all stakeholders must work together with even greater diligence to ensure that use of open-source software remains both open and secure.
LINK

Huge cloud market ranges $200B-$400B growing at 34%

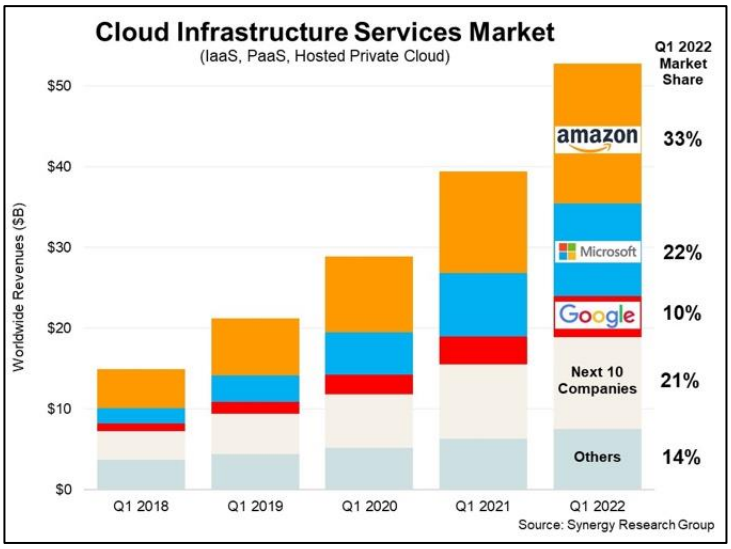
Estimates of market size for 2022 range from US$200 billion (Synergy) to US$494.7 billion (Gartner)

According to recent data from Synergy Research Group, Q1 enterprise spending on cloud infrastructure services was approaching $53 billion, up 34 percent from the first quarter of 2021. This includes infrastructure-as-a-

service (IaaS), platform-as-a-service (PaaS) and hosted private cloud services. The full year is fast approaching a US$200 billion run-rate. LINK

According to Gartner however, worldwide end-user spending on public cloud services is forecast to grow 20.4 percent in 2022 to total $494.7 billion, up from $410.9 billion in 2021. This includes IaaS, DaaS and PaaS. In 2023, end-user spending is expected to reach nearly $600 billion. LINK

The top three providers (see graph) account for 65 percent of the total and they continue to grow at 35-50% per year. Other non-Chinese cloud providers are typically growing in the 10-20 percent range.



With Cloud Service Providers (CSPs) planning 50 new regions over the next two years, migration to public cloud is not even close to maturity, it is still growing and gathering momentum. LINK

Bridge (the game) falls to AI

"This is learning based on incomplete information. What we've seen today represents a fundamentally important advance in the state of artificial intelligence systems". *Stephen Muggleton, Professor of machine learning at Imperial College London*

The Nukkai Challenge, held in Paris in March, marked the breaching of another human threshold. First it was chess that, famously in 1996, IBM's Deep Blue beat world chess champion Garry Kasparov. Two decades later, Lee Sedol, the world Go champion, was humbled by AlphaGo, AI software written by Deepmind a subsidiary of Google. LINK

Now bridge has fallen. Yes, bridge! Serial English champion Nevena Senior said ahead of the challenge, "I've not seen a robot that's better than me." In the end, she did not win a single hand.

Blended approach: NukkAI focused on what is referred to as a "neuro symbolic" approach, which combines two very different paths to learning. The first makes essentially random choices, stumbling to success in countless games, and learning as it goes. This was the approach taken by Deepmind, in AlphaGo. The second, "symbolic" approach, is rules-based, and is effectively how children learn at school, in which everything is explained. The combination is important.

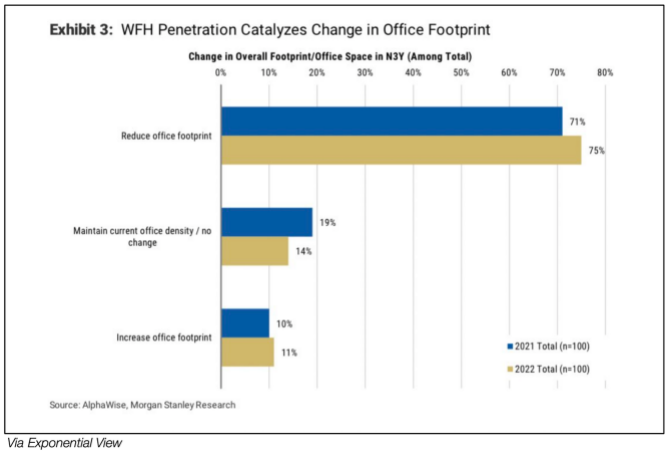
The blended approach allowed NukkAI's algorithm to grasp more than just the statistical realities of bridge. Brute probabilistic calculation was, in other words, being refined to cope with the game's ambiguities and uncertainties by using "background knowledge much in the way that we augment our own learning with information from books and from our previous experience".

Explainable AI: NukkAI's approach is important for another reason too. Unlike many AI algorithms, known as "black boxes", it can explain why it has made the move it has. Such "white box" techniques will probably be critical for the widespread adoption of certain technologies, such as driverless cars. If there is not to be a big pile-up, for example, it is essential that one AI-piloted autonomous vehicle at a junction is able to explain to other vehicles why it is taking the path it is.

Out of office – Impact on IT demand

"Office space demand is expected to decline by 14% over the next three years as work from home (WFH) and hoteling desk use continue to rise above market expectations. The number of employers expecting employees to WFH 3+ days/week increased to 75%" – Morgan Stanley, Twitter, 10-May, 2022

IT budgets will increase as investment in office space decreases over the next three years, according to Morgan Stanley analysts. Change in demand for physical real estate is occurring not only in office space, but is having a material impact on other property such as shopping centres, telco exchanges, learning institutions and movie theatres.



Via Exponential View

Source: Morgan Stanley via Carl Quintanilla

Beauty of maths

1 x 8 + 1 = 9
12 x 8 + 2 = 98
123 x 8 + 3 = 987
1234 x 8 + 4 = 9876
12345 x 8 + 5 = 98765
123456 x 8 + 6 = 987654
1234567 x 8 + 7 = 9876543
12345678 x 8 + 8 = 98765432
123456789 x 8 + 9 = 987654321

The difference between million and billion LINK

How much bigger is $1 billion than $1 million?
Our brains "really" suck at understanding money.

- 1 million seconds = 12 days
- 1 billion seconds = 32 years

Imagine you climb a staircase with every step representing $100,000 — a respectable yearly salary in Australia. Assuming it takes you around a second to climb each step.

- After 10 seconds you'd reach $1 million.

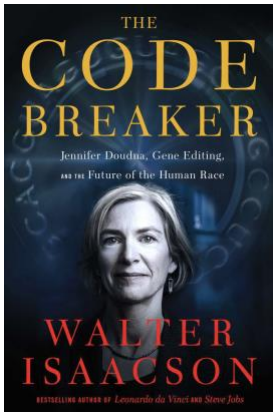
- After 2 hours 47 minutes, you'd reach $1 billion.
- To reach Elon Musk's net worth, you'll have to climb 9 hours a day for nearly 3 months (although he has been making it easier for you recently)

The Code Breaker - Jennifer Doudna, Gene Editing and the Future of the Human Race

By Walter Isaacson LINK

"This year's prize is about rewriting the code of life. These genetic scissors have taken the life sciences into a new epoch"

Secretary General of Royal Swedish Academy on awarding 2020 Nobel Prize in Chemistry to Jennifer Doudna and Emmanuelle Charpentier



One of my favourite authors has not disappointed. This is a gripping account of how the pioneering scientist and Nobel prize winner, Jennifer Doudna, along with her colleagues and rivals, launched a revolution that will allow us to cure diseases, fend off viruses, and enhance our children.

In the spring of 2012, the Berkeley biochemist Jennifer Doudna and her collaborators turned a curiosity of nature into an invention that will transform the future of the human race: an easy-to-use tool that can edit DNA. Known as CRISPR (clustered regularly interspaced short palindromic repeats), it opened a brave new world of medical miracles and moral questions. It has already been deployed to cure deadly diseases, fight the coronavirus pandemic of 2020, and make inheritable changes in the genes of babies.

The book explains concepts such as CRISPR, CAS-9 and RNA and how they have literally changed healthcare from here on. In a similar way in which the world learned the importance and power of software coding over the past few decades, through Doudna's breakthroughs, it is now beginning to appreciate of the potential of understanding genetic coding and our new-found ability to edit (reprogram) DNA – to reprogram living beings.

This is a story about major human endeavour, about genetics and about the ethical and moral issues that are raised when humans can relatively easily change our own DNA.

Stay connected

Kevin