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THE 2020s WILL BE AUSTRALIA'S DIGITAL DECADE

An Equinix white paper on digitalisation in the public sector

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Australia's Decade to Digitally Transform

Australia's digital decade has officially arrived. And while the decade has kicked off with a series of unprecedented events from Australia's bushfire crisis to COVID-19, the case for progressing Australia's digital agenda has never been stronger.

Following a recent report from the Productivity Commission, Australia could be at the crossroads of digital transformation if it doesn't act quickly. The report, titled "Productivity Insights 2020: Recent Productivity Trends," highlighted Australia's significantly low labour productivity growth rate, the lowest it has been in two decades, indicating the potential severe impact to the nation's overall economic growth rate if not addressed as a priority.[1] Australia's declining productivity fuels the urgent need for the private and public sector alike to address productivity, and digital transformation is a vital part of this.

It has become clear that Australian citizens increasingly expect the same experience interacting with the government as they have with innovative, leading private sector organisations. They expect government to meet the highest standards of service delivery, customer experience, simplicity, flexibility and ease of use.

In this white paper, we examine why Australia must step up its digital transformation and global digital interconnection agenda in the 2020s. We discuss what the current state of play is and how the public sector, in particular, can get ahead in its quest for digital readiness.

The University of Sydney Business School recently showcased how Australia needs to take advantage of the multiple opportunities afforded by digital

technologies to boost the country's productivity and enable the country to compete on a global scale.[2] And this is also true of Australia's public sector. Being a digitally friendly country is a crucial goal for Australia, as is allowing Australian citizens to access all government services digitally by 2025. Just like the private sector, the government too wants to fit into the digital age and be "easy to deal with."[3]

This might explain why the Australian Government's Digital Economy Strategy outlines the digital transformation of government itself—to keep pace with community needs and expectations.[4] Australia's ongoing success depends on the ability to harness technological advances to drive economic growth and raise productivity and living standards for all Australians.

Australia is lagging other nations in digital readiness.

Right now, Australia is lagging in digital readiness, according to the Infosys Digital Radar 2019 report, with a digital maturity index of 53.1 compared to the global average of 57.4.[5] However, the Australian government is changing this, as detailed in the recently released Prosperity Through Innovation plan that looks at Australia's transformation framework for the next decade.[6] From agencies needing to rearchitect networks and upgrade infrastructure to accommodate user experience while maintaining security requirements to protect data and privacy, to introducing a digital identity for all Australians, to removing inefficiencies in duplicate services and connecting departments, the public sector has a lot to do and consider to get digitally ready.

In summary, Australia can significantly benefit from the new age of global digital connectivity. Through the infrastructure that connects Australia with Asia and rest of the world, as well as the announcement of a new digital trade agreement with Singapore, Australia has the opportunity now to get digitally ready. Companies and government alike must get ahead in the digital game and get digitally ready for increased data flows moving forward.

Five Critical Priorities for the Public Sector

Australia has taken a significant step toward modernising the digital infrastructure of all government and public sector agencies by launching the Digital Transformation strategy and establishing the Digital Transformation Agency (DTA) with the mandate to "improve people's experience of government services."[7]

Here are five critical priorities we have identified for the public sector to consider as it gets digitally ready heading towards 2025:

1. **Reinvent information platforms with the latest innovation and trends to ensure security.**
    The public sector needs to consider protecting blockchain networks and using the internet of things (IoT) and artificial intelligence (AI) to detect national threats and speed up lifesaving information for Australians. This aligns with DTA's vision of providing integrated services for Australians.

2. **Integrate cloud with other government infrastructure to streamline interagency operations.**
    By deploying hybrid and multicloud infrastructures with localised control points, applications are simplified. Optimising them reduces costs while monitoring bandwidth, latency, resilience and security.

3. **Create an interconnected digital government to create a truly smart nation.**
    An interconnected government can develop mission-critical application resilience with policy-based disaster recovery tools. Distributed IT platforms can directly and securely connect all locations, people, data and things to build a robust private interconnection foundation to achieve a digitally ready state.

4. **Invest in edge capabilities as applications shift to being cloud-enabled at the digital edge.**
    The annual Equinix Global Interconnection Index (the GXI) forecast and supporting deployment data reveal that workloads are moving to the digital edge, where data is exchanged in proximity to people and partners.[8] Managing data at the source so that applications can access data instantly is becoming critical as companies start to develop 5G and IoT to speed up business processing capabilities exponentially.

5. **Facilitate urbanisation by supporting urban density with analytics of applications, data, content and networking.**
Innovations such as 5G, IoT, robotics and hyperautomation have given rise to smart cities, improving the quality of life in local communities. These communities have a local interconnection and concentration of users with access to smart technology.

The Smart Platform

Australia has taken a giant step toward modernising the digital infrastructure of all government and public sector agencies by establishing the Digital Transformation Agency (DTA) with the mandate to improve people's experience of government services. This initiative includes improving skills in government and helping agencies create services that are "simple, clear and fast."[9]

Reinventing information platforms with the latest innovations and trends enhances cybersecurity, and this is a vital part of digital transformation. Digitally sophisticated and interconnected platforms protect blockchain networks, secure data repositories for data privacy and allow for partnering with regulatory technology (regtech) companies to enhance compliance. Further, the use of IoT and AI helps to detect national threats and speed lifesaving information and insights before any boots hit the ground.

Integrating information platforms with the latest technology aligns with DTA's vision. As multiple, interconnected blockchain networks rise, they are solving some of the public sector's most sensitive transaction validation issues securely and with speed.

Today's governments need secure information exchange between agencies which require new capabilities and scale. Digital transformation is the path to those capabilities, and we need to optimise them to support new and existing agency missions. Interconnection is necessary for collaboration and to streamline information exchange across multiple agencies.

Secure information exchange between agencies requires new capabilities.

According to the latest Global Interconnection Index (the GXI), an industry study published by Equinix that tracks, measures and forecasts the global growth in interconnection bandwidth between businesses and organisations, public sector digital transformation is rapidly accelerating private interconnection.[10]

Interconnection bandwidth reflects the total capacity provisioned to privately and directly exchange traffic, with a diverse set of counterparties and providers, at distributed IT exchange points inside carrier-neutral colocation data centres. To capitalise on these trends, Australians need a fast, reliable, scalable and secure interconnection platform that enables private and direct data exchange.

The government must create a robust, private and secure platform that segments and controls data traffic to address scenarios requiring the highest levels of cybersecurity. A highly secure platform includes protecting blockchain networks, securing data repositories for data privacy, protection and compliance, and preventing data breaches initiated by bad actors.

Rearchitecting a centralised network as a distributed, interconnected fabric of private exchange control points for collaboration and data sharing capabilities is a starting point. Data can then be close to the networks, clouds and information exchanges required for real-time information collection, exchange and analysis.

Modern Infrastructure

Government agencies need a new architecture offering direct interconnection to clouds, partners and ecosystems with closer proximity to consumers and other agencies. The seamless and integrated experience provides a digital supply chain of rich ecosystems of agencies, industry, clouds, networks and partners.

When it comes to infrastructure, by deploying hybrid and multicloud infrastructures, the government can integrate cloud seamlessly with other infrastructure capability. The localised control points achieved through cloud effectively simplify applications, data and multicloud integration to streamline interagency operations.

There are many benefits for integrating cloud. Firstly, the government can optimise cloud networks to control costs while monitoring bandwidth to increase capacity, reduce latency, and improve distribution, resilience and security. Driver and Vehicle Standards Agency (DVSA), a U.K. government organization, chose to move services to the cloud with an interconnection strategy

with Equinix Cloud Exchange Fabric® (ECX Fabric®). By doing so, they cut latency by two-thirds and time to add new connections from months to hours.[11]

Many agencies can also access cost-effective hybrid multicloud by moving applications into clouds, leveraging compliance partners and developing flexible, consumption-based contracts. This modern IT infrastructure provides smart and convenient services managed by digital platforms and helps to remove complexity.

The Australian government is growing cloud partner ecosystems to enhance distributed cloud security. They are also building workforce skills to drive cloud adoption and implementation. Cloud complexity is escalating as agencies increasingly leverage hybrid multicloud infrastructures to optimise and scale application performance.

Services in the cloud connect government services behind the scenes for a seamless, consistent experience. Governments can integrate their capabilities with multicloud by deploying applications in clouds and choosing application programming interface (API) services built for elasticity. The hybrid multicloud interconnects cloud processing to provide innovative and better services to increase productivity.

Cloud-based hardware security module (HSM) services are on the rise as agencies move to simplify hybrid multicloud data encryption key management. Direct, private connectivity to multiple clouds and networks also provides high security.

An Interconnected Digital Government

Creating an interconnected digital government enables efficient interagency collaboration with Software as a Service (SaaS)-based office suites and information exchanges. A smart nation has sensor-based trend analytics, with regional and national actionable insights, and mission-critical application resilience with integrated, policy-based disaster recovery tools.

Government modernisation is shifting agencies from traditional IT architectures to more distributed, interconnected IT platforms that can directly and securely connect all the locations, people, data and things needed for success. Creating a robust private interconnection foundation prepares Australia to ride the next wave of digital innovation with confidence and greater agility and flexibility.

The Australian DTA has defined three major strategic priorities to put in place a government that is:

- Easy to deal with.
- Informed by you.
- Fit for the digital age.[12]

These priorities call for securely collecting, storing and sharing data, including interconnection with various multicloud and edge strategies. For example, by implementing a digital identity such as My Gov ID, Australians can easily prove their identities for a secure online presence. Merging logins saves time for citizens, preventing the need to log in on multiple sites to access a particular service.

Within a supportive ecosystem and interconnection, the government can engage data analytics and AI to inform policy and decision-making and to improve digital services. This digital ecosystem allows services to adapt to data that individuals have chosen to share and share them across agencies while also protecting and securing data flows to prevent third parties from accessing them. With these services, Australians can easily update data once when there are changes in particulars such as a home address, for example, and access relevant information, reminders and alerts.

The Australian government's Vision 2025 promise to its citizens is the ability to "access all government services digitally," identifying 68 high-volume transaction services, each with more than 50,000 transactions per year.[13] These services protect citizen data and help to combat public health crises.

Digital transformation helps government protect Australians' data, deliver vital services and combat crises.

Such a transformation provides real-time insights capability as a government agency can collect data once with a user's digital identity and share it with multiple other agencies when the occasion arises. Having a digital platform to share across agencies removes complexities to make government "easy to deal with" as per the DTA's strategic priority. With the right technology partners providing top-notch digital ecosystems and interconnection, the government can remove the inefficiencies of duplicate services over multiple agencies and layers of government.

Investing in the Edge

Investing in edge capabilities ensures that public data is collected close to the source (that is, end user) so that applications can access the data instantly. Managing data at the source is of increasing importance as companies start to develop 5G and IoT capabilities, and as the public increasingly expects services to deliver in real time.

Government applications are undergoing their next seismic shift as they move from being cloud-delivered from the centre to cloud-enabled at the digital edge. The GXI forecast and supporting deployment data reveal that workloads are moving to the digital edge, where data is exchanged in proximity to people and partners.[14]

Delivering experiences and exchanging data at the digital edge improves responsiveness and business processing capabilities. For example, 5G is expected to reduce the last-mile (endpoint) latency to 5 milliseconds, meaning that edge-delivered services have nine times the advantage over regional core delivery.[15] The technology at the digital edge connects government services behind the scenes for a consistent, seamless experience.

Distributed IT services require a digital platform for superior performance, security and data exchange at the digital edge. The GXI found that these distributed IT services correlate to an increased need for interconnection bandwidth to achieve a digital-ready state.

Innovation at the digital edge helps improve decision-making and increase transparency.

Upon the advent of 5G technology, 5G networks accelerate critical agency efforts to collect and analyse data. Fast analysis of vital intelligence is necessary to protect everything from ports of entry to government employees under continuous phishing attacks. AI, ML and quantum computing platforms distributed at the digital edge help the DTA improve decision-making and be more transparent and auditable.

Direct, private interconnection distributed out to the edge, where most IoT devices reside, shortens the distance between the devices sending data and the

digital resources analysing it. The resulting low latency enables the kind of lightning-fast insights that can save lives.

Rearchitecting the centralised public network as a distributed, interconnected fabric of private exchange control points helps the government procure new collaboration and data sharing capabilities. These capabilities put data close to networks, clouds and information exchanges required for real-time information collection, exchange and analysis.

Network architecture must transform to enable omnichannel distribution and connectivity of apps and to accommodate data sharing at the edge. Applications must be delivered to integrate and address scale, security and performance at the edge.

The digital edge control points are located close to agencies, employees, partners and things, providing global coverage. The need to improve user experience across more device types and in more locations is pushing network controls and functions to the digital edge.

Smart Cities

Cities are developing at an unprecedented rate. The emerging technologies such as IoT, AI and robotic process automation have proliferated in smart cities. According to the UN, 55% of the world's population live in urban areas, and that is expected to increase to 68% by 2050.[16]

Urbanisation creates challenges which must be overcome to uphold quality-of-life standards. Smart governance, air quality (pollution), green infrastructure, technological capabilities, energy efficiency, water availability, urban mobility, public transport, logistics, safety and sustainability are some of the issues that arise from urbanisation. Smart cities are interconnected so that their urban living spaces can be cleaner and safer. They also experience fewer traffic jams and cause less stress for residents.

With urbanisation, supporting urban density requires the local interconnection and analytics of applications, data, content and networking where there is a concentration of users. Advancements in 5G, IoT, robotics and hyperautomation have given rise to smart cities, easing the provision of amenities by authorities. The technologies at the centre of a smart city work to improve the general quality of life for its inhabitants.

At the core of any smart city is its information-driven, interconnected foundation. With the widespread adoption of smartphones and the internet, connectivity

is available everywhere. Sensors and mobile technology are embedded in IoT devices, and location technologies allow governors to predict failures and resolve issues. Advanced analytics let technology companies convert operational data into real business intelligence, catering specifically to each customer in a connectivity-dependent marketplace.

In 2014, Yarra City Council in Victoria required a digital transformation strategy to update their architecture to provide services in environmental initiatives, building and construction applications, employment services and local business schemes. The city migrated its backup disaster recovery to the cloud via Platform Equinix® and rolled out a number of cloud-based software applications to bring services to the edge and make community services more efficient.

Interconnection helps cities protect residents, identify risks and maximise public resources.

IoT has led to a plethora of opportunities for potential smart cities willing to improve operational efficiency and quality of life. IoT can generate big data that address opportunities and challenges in real time, reducing costs, identifying risks and maximising public resources.

With 68 percent of the world population projected to live in urban areas by 2050, governments must future-proof our cities by investing in smart technology to manage climate change, disasters, security, energy, environmental pollution and extreme poverty.

What's Next?

The public sector must build a highly connected ecosystem that connects governments to governments, governments to citizens and governments to enterprises. Part of this is a robust platform that detects national security threats and quickly transmits data to everyone who needs it in the event of disasters and emergencies, which is particularly important in today's environment.

Interconnection leaders like Equinix provide best practices to ensure successful hybrid and multicloud IT infrastructure deployments. Such scalable and optimisable platforms transform manual services to real digital applications that are continuously available public services for government agencies. They also ensure cost reduction by economies of scale.

To facilitate interagency requirements, highly skilled Equinix Global Solutions Architects® assess your current technology environments and offer valuable advice on digital transformation for a digitally ready state. Platform architects will tailor strategies based on best practices at the digital edge, existing IT infrastructure and agencies' specific digital goals.

The digital edge contains a wealth of information in its digital knowledge base. Its knowledge and experience provide all the information you need to create a sound, future-proof digital edge strategy to achieve your digital transformation goals. The lines between cloud and edge are blurring as applications shift to being cloud-enabled at the digital edge. This is bound to evolve in the coming decade with 5G technology as accessing data instantly at the periphery becomes the new norm.

A smart nation requires an interconnected digital government where population centres, commerce, and digital and business ecosystems meet and interact in real time. A smart nation is also a conglomeration of smart cities with a heavy urban density that needs to be efficient and digital. Platform digital tools can also manage local interconnection and provide residents with access to smart technology to improve their quality of life. Data analytics tools pave the way for urbanisation and citywide digital transformation.

As private businesses invest in edge capabilities and network transformation to perform wide-scale functions with instant processing, the public sector must gain the agility to keep up with the rapidly changing technology landscape.

A Blueprint for the Future

Digital transformation in both the public and private sector is critical to resolving Australia's declining productivity. Australia is already lagging in digital readiness with a lower than global average digital maturity index. And while the Australian government is on the case with the setup of the Digital Transformation Agency (DTA) and Prosperity Through Innovation plan, the government needs to adopt the following blueprint for the future to catch up with the rest of the world and leading corporations on the digital front.

1. **Like the private sector, the public sector must embrace digital transformation.**
   The new DTA must ensure that government agencies utilise a robust, private, fast, scalable and secure information exchange and interconnection platform to streamline multiagency information exchange, meeting private sector demands.

2. **A modern IT architecture should prioritise convenience and remove complexities.**
   The Australian government must integrate a digital chain of consumer networks, industry systems and agency partners to be in close proximity with them and ensure instantaneous service delivery.

3. **Government modernisation requires nationwide interconnection.**
   In line with Vision 2025, the Australian government must be prepared to ride the next wave of digital innovation with greater agility to allow citizens to access all government services digitally with distributed interconnected IT platforms.

4. **Transforming network architecture at the edge enhances critical capabilities.**
   5G networks, machine learning (ML), and quantum computing platforms at the digital edge accelerate critical agency data collection and vital analysis, resulting in instant insights to enable swift emergency responses.

5. **Future-proof your smart nation to manage disasters.**
   IoT and sensor-based trend analytics with localised insights equip governments with integrated policy-based crisis recovery tools and operational efficiency in addressing challenges in real time and maximising public resources, improving the quality of life.

About Equinix

Equinix, Inc. (Nasdaq: EQIX) connects the world's leading businesses to their customers, employees and partners inside the most-interconnected data centres. On this global platform for digital business, companies come together across more than 55 markets on five continents to reach everywhere, interconnect everyone and integrate everything they need to create their digital futures.

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