Australian Government Harnesses IoE Capabilities to Cut Travel Costs, CO$_2$ Emissions, and Energy Usage

EXECUTIVE SUMMARY

Objective

- Improve opportunity, efficiency, and quality of life for the citizens of Australia through technology
- More effectively connect Australian states and territories to the Australian government
- Encourage citizenry and businesses to realize the advantages of telework
- Generate efficiencies and productivity by allowing senior government officials to essentially have meetings at their desk, rather than having to travel

Strategy

- Undertake a staged testing and rollout plan, as well as constant communication with end users about changes and updates

Solutions

- Immersive telepresence facilities at government offices that encourage virtual meetings and reduced travel
- Policies and programs that encourage telework for both public- and private-sector employees

Impact

- NTS hosts average of 75 meetings per month across 38 sites, saving taxpayers estimated $1.4 million AUD per month in travel costs
- Reduced burden on road infrastructure, cleaner air, and decreased energy consumption

Background

In January 2014, Cisco released the results of an in-depth analysis of the economic benefits of the Internet of Everything (IoE) for the public sector. Cisco's model revealed that some $4.6 trillion in "Value at Stake" would result from the adoption of IoE capabilities across 40 key public sector use cases over the next 10 years, including smart water, smart buildings, smart energy, smart parking, and more (http://bit.ly/1aSGlzn).

As a next phase of its analysis, Cisco engaged Cicero Group, a leading data-driven strategy consulting and research firm, to undertake a global study of IoE capabilities across these 40 use cases — how the best public sector organizations are "connecting the unconnected," as Cisco terms it. To that end, Cicero Group conducted interviews with dozens of leading public sector jurisdictions — federal, state, and local governments; healthcare organizations; educational institutions; and non-governmental organizations (NGOs) — to explore how these global leaders are leveraging IoE today.

The research examined real-world projects that are operational today, are being delivered at scale (or through pilots with obvious potential to scale), and that represent the cutting edge of public sector IoE readiness and maturity. The aim of the research was to understand what has changed in terms of the jurisdictions' people, processes, data, and things, and how other public sector organizations can learn from (and replicate) the trail blazed by these global IoE leaders. In many cases, these jurisdictions are Cisco customers; in others, they are not. The focus of these jurisdictional profiles, therefore, is not to tout Cisco's role in these organizations' success, but rather to document IoE excellence, how public sector entities are putting IoE into practice today, and to inform a roadmap for change that will enable the public sector to address pressing challenges on multiple fronts by drawing on best practices from around the globe.

CISCO

About Australia National Telepresence and Telework Initiatives

The government of Australia aims to improve opportunity, efficiency, and quality of life for the citizens of Australia through technology. It has pursued multiple initiatives toward this goal, three of which are detailed in this report: nationwide broadband access; immersive telepresence facilities at government offices to encourage virtual meetings and reduced travel; and policies and programs that encourage telework for both public- and private-sector employees.

Abul Rizvi is deputy secretary for digital economy in the Department of Communications of the Australian Government. This role includes promoting use of the National Broadband Network to enable Australians to "take full advantage economic, educational, and social opportunities offered by the digital economy." Duties include activities related to promoting online safety and end-user skills, and establishing a compatible regulatory environment to promote digital transition and capacity.

John Sheridan is chief technology officer and procurement coordinator for the Australian Government, and the current chair of the Standards Australia JTC1 Strategic Advisory Committee. He has worked for the Australian Government in a number of senior IT capacities, primarily for the Information Management Office and the Department of Defense. Mr. Sheridan served as a member of the Standards Australia Technical Committee IT-030 from 2003-2008, and in this role co-authored AS 8015 Standard on the Corporate Governance of IT.

Objectives

National Telepresence System

The Australian government initiated the National Telepresence System (NTS) to support the agenda of the Council of Australian Governments (COAG) and to better connect the Australian states and territories with the Australian government. Mr. Sheridan explained that the NTS is designed to "generate efficiencies and productivity by allowing senior government officials, both elected and nonelected, to essentially have meetings at their desk, rather than having to travel. [It] aligns with the Government's Policy for e-Government and the Digital Economy by making more effective use of ICT to reduce costs, lift productivity, and develop better services."

National Telework Initiative

With the arrival of nationwide high-speed Internet connectivity through the National Broadband Network Company starting in 2009, the government wanted to encourage citizenry and businesses to realize the advantages of telework — the efficiency and productivity achievable at home — enabled by high-speed connectivity. According to Mr. Rizvi, "large portions of the population around cities are spending between two to three hours a day just stuck in transport." Consequently, transportation departments in some of Australia's major cities have supported the Telework Initiative to help ease the burden on their transport infrastructure.

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"There is good evidence, certainly in the private sector, that intelligent use of telework can improve productivity of the workforce," Mr. Rizvi said. "There is also good evidence that it can reduce costs directly to the businesses that are implementing telework. There's also good evidence that businesses that implement telework are able to attract and retain higher-skilled staff more readily than other firms. So there are three important drivers."

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Strategy

National Telepresence System

In 2009, the Australian government implemented its National Telepresence System (NTS). It installed immersive, room-based telepresence video to facilitate intra-governmental meetings across great distances and multiple jurisdictions. By replacing travel with telepresence meetings whenever possible, the government sought to reduce costs, increase productivity, and decrease carbon emissions. The technological partners for the telepresence units and connectivity were selected for their capacity to produce a highly secure, high-definition, and high-quality audiovisual display of video-conferencing participants over the sometimes vast distances of Australia.

Within the government, the response has been strongly positive. Bookings of the telepresence-equipped rooms have been steady, indicating broad acceptance, and the expansion of the system suggests its popularity as well.

The NTS was funded by the Australian government. Mr. Sheridan explained the system of funding the current system and the plans for expansion: "Funding for the initial system and its subsequent iterations has been through a business case approach to government for funding," he said. "This establishes our core functionality; and then, when it is appropriate, we establish agreements for a user-pays scheme (cost-recovered) to extend the reach beyond the original business case."

According to Mr. Sheridan, the management and oversight of the NTS belongs to the Technology and Procurement Division (TPD) of the Australian government. Within the Department of Finance, the TPD has responsibility, under the Administrative Arrangement Orders of the Australian Government, to provide whole-of-government communications services.

Within the TPD, Mr. Sheridan runs an active operations center that monitors technical aspects of the NTS network. The TPD also provides a service desk for end-user liaison and support.

National Telework Initiative

The National Telework Initiative seeks to recruit new industries into the practice, increase business efficiency, and improve quality of life by minimizing commute times and maximizing productivity and participation in the workforce. With direction from the Department of Communications, the National Telework Initiative conducts telework promotional activities, efficacy studies, policy development, and telework education efforts.

Mr. Rizvi indicated the initiative comes in an environment of enthusiasm for teleworking among employers in the private sector, saying "it's becoming almost standard now" in many industries. These include contact centers, banks, and insurance companies, which routinely employ a large number of teleworkers. Mr. Rizvi also noted that the public sector has been slower to adopt telework, but that the Australian government is trialing telework opportunities across seven agencies to help build a case for further application in the public sector.

Collaboration and outreach are conducted across sectors, including some of Australia's largest industry sectors. "Whenever you provide telework in theory, it doesn't really have much impact," Mr. Rizvi explained. "If you can show a business successfully using telework, that makes a big difference. If the business is in the same industry sector — indeed, is one of your competitors — that is the most powerful thing you can do."

The National Telework Initiative is funded and supported the Australian government. Funds are used in promotional activities, as well as in funding research. According to Mr. Rizvi, some funds have been provided to specific industry groups to help them develop case studies for telework in their specific industries. The government also partners with private entities, such as IT and telecommunications companies, universities investigating work/life balance issues, and transportation infrastructure entities interested in reducing the traffic burden.

Solution

National Telepresence System

Thirty-eight sites in government offices throughout Australia were initially chosen for teleresence installation. The service connects the seven Commonwealth Government offices, Prime Ministerial and Cabinet offices, Parliament House, and the offices of Premiers and Chief Minister agencies in every state and territory over a single video-conferencing system. An online booking tool provides the ability to see availability or services and make bookings as required.

Ease of use has been important in users accepting the NTS. Mr. Sheridan indicates that users are sufficiently familiar with the system after a single exposure. "One comes in, looks at the booked meeting, presses the meeting on the screen, and connects," he said. A specialist is also designated to assist users. "Each room has a champion or concierge on-site to manage access," he said.

Mr. Sheridan describes the underlying network of the telepresence system as a hub and spoke design, with centralized scheduling and call switching with distributed endpoints. "[These are] connected through redundant encrypted communications links," he stated, "and core elements are distributed to multiple locations so that single points of failure are eliminated and communications links have, wherever feasible, multiple redundant ways of connecting back into the core."

Mr. Sheridan indicated that the system uses "standards-based, off-the-shelf hardware and software" to allow access to vendor support and maintenance wherever possible. This step lessens the administrative burden of government tech-

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support personnel and provides the added benefit of warranty protection. Internal support personnel use a combination of proprietary and open-source tools to manage the video links for both quality and capacity. The approach allows support to anticipate problems "hopefully before they impede our ability to deliver the service," he said.
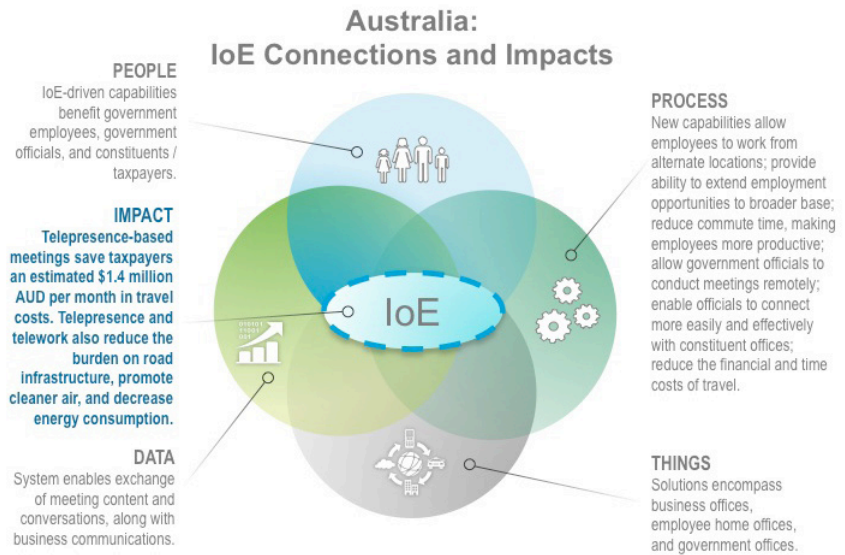
National Telework Initiative

The telework initiative includes a number of components, including education, policy development, promotion campaigns, and technical resources to help managers and employees build a business case for a telework program and establish successful telework principles and protocols. According to Mr. Rizvi, these protocols are critical to program success. "You need to have people who sign up with the protocols and actually adhere to them. When people lapse from them, that's when the problems occur with telework, and the isolation issues, disconnect issues, and disengagement issues arise."

Mr. Rizvi said that with regard to telework application in the Australian government, his office helps to establish a basic structure for optimizing the telework environment, but will leave most of the strategy to the employer. "We set some protocols at the agency level — high-level protocols — and then we've said to the manager, 'You must then modify these to suit your team,' because different people will deal with these things differently."

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Figure 1. Australia: New and Better Connections.

Australia:
IoE Connections and Impacts

PEOPLE
IoE-driven capabilities benefit government employees, government officials, and constituents / taxpayers.

IMPACT
Telepresence-based meetings save taxpayers an estimated $1.4 million AUD per month in travel costs. Telepresence and telework also reduce the burden on road infrastructure, promote cleaner air, and decrease energy consumption.

DATA
System enables exchange of meeting content and conversations, along with business communications.

PROCESS
New capabilities allow employees to work from alternate locations; provide ability to extend employment opportunities to broader base; reduce commute time, making employees more productive; allow government officials to conduct meetings remotely; enable officials to connect more easily and effectively with constituent offices; reduce the financial and time costs of travel.

THINGS
Solutions encompass business offices, employee home offices, and government offices.

IoE

Source: Cisco Consulting Services, 2014

Impact

National Telepresence System

Mr. Sheridan describes the general benefits of the NTS as providing "effective, efficient, productive government work." Reducing travel time is an advantage, particularly in a country as large as Australia, and the savings have been significant. NTS hosts an average of 75 meetings per month across the 38 sites, saving taxpayers an estimated $1.4 million AUD per month in travel costs. Total savings, from initiation in October 2009 up to December 2013, are estimated at more than $72.7 million AUD.

In addition to replacing many conventional meetings, NTS allows officials to communicate more often than they would have before. "People still travel," stated Mr. Sheridan, "but we also probably have meetings where sometimes we wouldn't have had such meetings. Now, there's the opportunity to do that productively and efficiently. We would say increased collaboration is a consequence of this."

Reduced burden on road infrastructure, cleaner air, and decreased energy consumption are other benefits. Mr. Sheridan said of the NTS initiative, "That's 14,100 tons of carbon dioxide emissions not attributed to the Australian government."

National Telework Initiative

Because telework is already broadly accepted and applied in the private workforce, the impact is clear: "The bulk of the people participating — both the people in the office as well as the people at home — felt they were indeed part of the team and had not lost contact," said Mr. Rizvi. "[They] had not become isolated from the team because they were teleworking. I think that's absolutely crucial to long-term success."

The Australian government is currently assessing the benefits of telework through the trial being conducted in government agencies. Mr. Rizvi is optimistic about the potential benefits, given the success of telework in the private sector. "We have initiated a trial of telework using high-speed broadband across seven different agencies," he said. He hopes that as a result of the trial, it will be clear that benefits accrue not just to the employee, but to the agency as well. "I think [that's what's] happening in the private sector," said Mr. Rizvi. However, "in order to bring the skeptics with us, we need the evidence."

Lessons Learned / Next Steps

National Telepresence System

As with all government data, security within the system remains a top priority. Mr. Sheridan mentioned the difficulty of implementing a broad expansion of NTS within a multi-classification-level system, but believes that "technical solutions are emerging." He concludes: "We hope to work with others within the government and our partnerships to bridge this gap and significantly extend the reach into the broader community."

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Mr. Sheridan learned that a staged testing and rollout plan, as well as communication with end users about changes and updates, is essential in a successful system deployment. "Technical features are not always forward-compatible," he said. "As vendors introduce new features into their software, it is sometimes the case that these override or 'break' other features that you already have in use. You are torn between providing a new feature and maintaining continuity and familiarity of service."

To deal with opposition to changes among some end users, Mr. Sheridan has learned to incorporate a touch of salesmanship in introducing new programs or features. "The appetite for technology solutions is not consistent across all users. You need to cater for those who are resistant to change, making sure the benefits of the tools you are providing can be seen in the way they conduct their business, and demonstrating the value of the solutions you provide in a targeted manner," he stated.

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Future plans are to expand the system with the installation of 150 EX90 monitors and a telepresence-compatible phone system. Mr. Sheridan said, "In the next iteration of the environment we are hoping to establish a more spontaneous use of the system by providing personal video conferencing units that will allow senior members of the government to interact one-on-one, and with the existing immersive rooms in a scheduled meeting context. We will need to encourage its use in this manner," he said.

Beyond this Phase II of the NTS system, Mr. Sheridan also stated the government is looking to extend communication to include government-to-business and government-to-citizen connections. Mr. Sheridan believes that with the expansion of the system, it is likely that users will develop custom uses for the technology. He hopes to "allow for more organic use cases to emerge as familiarity with the system widens."

National Telework Initiative

For telework to succeed, employees at home and in the office need to feel that the experience is the same, if not better, than when everyone worked together in an office. Teleworking employees need to have access to all of the applications that they need to do their work. Employees also need to have access to their colleagues in the same way they would if they were in the office. "The key," said Mr. Rizvi, "is seamless technology that enables teleworkers to, in essence, feel as if they're in the office" — technology through which the teleworker can almost always be seen by the rest of the team and the teleworker can see the team. He believes that video technology, for one, is important in achieving that: "We think that's essential. Just as the telephone is a natural part of the way you work, video conferencing has got to become a natural part of the way you work."

Mr. Rizvi has also found that governments must establish a basic framework that addresses many of the issues of teleworking in order to promote a consistent and successful experience. "In terms of lessons learned, apart from getting the technology right, the other dimension of this is that you really do need to spend some time with both managers and the teleworkers and their colleagues developing some protocols for how they will work together, and if you don't get the protocols right, then problems arise and they fester." In addition, the protocols need to be revisited frequently, such as biannually.

More Information

For more information about the National Telework Initiative and National Telepresence System, please visit http://www.telework.gov.au and http://bit.ly/1iPwuau