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**SUBMISSION TO THE JOINT STANDING COMMITTEE ON ELECTORAL
MATTERS**

INQUIRY INTO THE 2016 FEDERAL ELECTION

Addressing Matter 1(d) of the Terms of Reference

The potential application of new technology to voting, scrutiny and counting with particular reference to its application to remote voting, ADF personnel on deployment and supporting vision-impaired voters.

CPS Industry Networks Pty Ltd

In partnership with

Edentiti Pty Ltd and Auraya Systems Pty Ltd

20th October 2016

Introduction

The Joint Standing Committee on Electoral Matters (JSCEM) faces a dilemma in respect of its consideration of the introduction of Remote Voting (RV) into Australia's electoral landscape.

On the one hand, there will be submissions from vendors, such as this one, encouraging the JSCEM to make a recommendation to Government to proceed with the introduction of RV in some form. These submissions will be joined by others from groups, for example, representing those electors such as blind low vision (BLV) and disabled voters who have so far been unable to enjoy a secret and independent ballot that other able-bodied voters have enjoyed since federation. RV provides a solution to their disappointment that the federal government has not so far acted to deal with their level of perceived disenfranchisement. Other groups which would benefit from RV include those voters who would be overseas or interstate, or are simply unable to attend traditional polling booths on election days. There is also a swelling chorus from many of the voting public to enable remote voting due to the convenience of doing so from their homes or work-places.

On the other hand, there will be submissions from those with the best interests of Australia's electoral system at heart, warning of the risks associated with RV where the system relies on publicly available networks such as the Internet. JSCEM will be presented with a range of cogent arguments from practitioners and academics about the risk of cyber attacks and large scale fraud associated with RV, in comparison to that which is faced by the current manual system which could only ever be from a handful of fraudulent votes. Other submissions will point to the importance of maintaining the "theatre of democracy" that runs deep in Australia's electoral psyche by having citizens attend polling places, rather than exercising their franchise from the privacy of their own homes.

A number of JSCEM inquiries in the past have been cognisant of the risks and significant change that RV would bring and have recommended that it not proceed. Yet, whilst an understandable reaction, the debate about the introduction of RV has not disappeared. Indeed, each electoral event seems to fuel the debate even more, with factors such as the high and escalating costs associated with the current manual, paper-based voting regime, the increasing logistical and personnel demands of conducting an election making it more and more prone to human error and less efficient, and the apparently successful and well received examples of RV in NSW (iVote) and Victoria (vVote).

All of the arguments for and against RV have been considered by previous inquiries and will not be repeated in depth here. While there will be differences of view as to whether a system of RV is inevitable, the **CPS Consortium** is of the view that there is much to be gained by proceeding with an exploration of RV now, rather than delaying further. Our submission is based on a conviction that Australia's compulsory voting regime, coupled with its preferential voting system and historically high level of integrity, make the requirements of such a system unique in the world, such that only a bespoke system will satisfy these requirements.

There are a number of key elements of any RV solution. These include:

- voter identification processes that give confidence that only eligible voters can vote and that only one vote per voter is counted; and
- voter interfaces allowing simple screen-based presentation of ballots consistent with Australia's system of preferential voting; and
- vote counting and audit systems/reports supporting election results; and
- its integration with back-end election management systems operated by the Australian Electoral Commission (AEC); and
- a secure telecommunications network over which the system is deployed and ballots cast.

We are of the view that the first step towards the introduction of RV is an in-depth **feasibility study** examining all aspects of the introduction of RV for Australia which will act as a blueprint for the later phases of specification, design, development, testing and, when all stakeholders are satisfied with the system, the staged deployment. This feasibility study would also address the areas of Internet security and the development of the necessary management strategies to accompany the system rollout.

A feasibility study does not commit the Government or Parliament to implementation of RV. Nevertheless, it would be an important signal to the community that the JSCEM is at least willing to consider the matter, subject of course to it being satisfied about the integrity of the system. A feasibility study will of course take some time and accordingly it is suggested that it commence sooner rather than later.

Should implementation of RV ultimately proceed, and with an abundance of caution in mind, our view is that system deployment might initially be confined to a low risk segment of voters such as BLV and disabled voters and ADF personnel on deployment, but the system would be upwardly scalable such that it could be deployed to broader segments of voters, such as absentee and postal voters, and ultimately to the majority of the voting public, as and when experience, confidence and trust in the system grows.

This submission suggests that the JSCEM recommends to Government a public/private partnership (PPP) that brings together the unique expertise offered by the private sector and the relevant government agencies, in particular, the Australian Electoral Commission, the Australian Signals Directorate and the Australian Cyber Security Centre.

The CPS consortium is ideally placed to undertake such a feasibility study and, subject to that study, the later stages of development and deployment, in conjunction with the various Federal Government departments and agencies that should be involved.

Consortium

The **CPS Consortium** is ideally placed to assist government and is composed of the following Australian-owned companies:

- **CPS Industry Networks Pty Ltd**

is a member of the CPS Group of Companies which since 1970 has been providing computer systems and services to both the private and government sectors, both in Australia and overseas. CPS is a Systems Integrator and Systems Developer with unique technology and a proven track record for working with the Australian Government. In collaboration with government agencies, its successes include the Electronic Travel Authority System (ETAS) and the Advance Passenger Processing (APP) system, both of which were outsourced to CPS by the Department of Immigration and have been operating for over 20 years, continuing to serve Australia's border integrity efforts well. These are extremely complex and secure systems, involving many overseas parties and both ETAS and APP are regarded as world-leading systems which have been adopted by many other Governments around the world.

Another member of the CPS Group is SuperChoice which runs an Industry Network for distributing superannuation payments between Employers and Superannuation Funds. SuperChoice works under Australian Taxation Office industry governance and is the dominant supplier in this field, collecting superannuation payments for 3.2 million Australians from 80,000 employers.

- **Edentiti Pty Ltd**

is part of the VixVerify Group, and via its "Greenid" platform, is the oldest and largest Gateway Service Provider to access the Federal Government's Document Verification System (DVS). Edentiti services both the private and government sectors, having many government clients in Australia such as Australia Post, Customs and the Department of Prime Minister and Cabinet.

- **Auraya Systems Pty Ltd**

is one of only two global Voice Recognition and Authentication companies which via its Armovox products is a world-leader in Voice Authentication technology and solutions throughout both the private and government sectors. One of its largest clients is the New Zealand Government Department of Inland Revenue.

Auraya Systems is majority owned by the CPS Group and Edentiti.

The combination of skills, existing systems, and experience in large scale global networks, as well as experience working with the Federal Government, make our consortium particularly powerful and suited to providing systems for Voter Registration/Authentication and Remote Voting.

Background

The recent election has of course enlivened the debate about remote voting, driven in large measure by long delays in finalising the count in a number of electorates which in turn delayed formation of government, and subsequent commentary by both the Prime Minister and the Leader of the Opposition suggesting that the matter deserves further consideration.

Notwithstanding the recent focus on this topic, our consortium has been undertaking research and development for some time. Given the experience of the recent elections, we feel it is the right time for Australia to embark on this path.

Australia's elections have long been lauded for their integrity and efficiency, but with a growing population and more complex political and social environment, it has become increasingly more difficult to maintain this integrity using paper-based voting systems supported by large numbers of election workers, most of whom are employed for one day only, every few years. Some of the problems associated with the 2016 election, such as long queues at polling stations, running out of ballot papers, misplaced votes and the length of time taken to count the ballots, highlight the need for the introduction of technology during the voting process, sooner rather than later.

Importantly, the approach developed by our consortium will have a significant impact on improving the quality of the electoral roll and voter identification, including removing the potential for multiple voting, which could become increasingly problematic given the number of electorates with close margins. It would also have a significant impact on the number of unintended informal votes.

The consortium is conscious of the considerable body of work which has been undertaken by various parties in the past, including the recent report of the Joint Standing Committee on Electoral Matters in the 44th Parliament, which examined in detail the advantages and risks associated with RV.

The need for greater reliance on technology is already clear with the use of large scale scanning to count 2016 Senate ballots. The issue of course is, at what point should the actual voting process become more technology based, and how can that best be accomplished with a level of risk that is no greater, or indeed, much less than the risks inherent in the current manual system.

As is clear from the 2016 election, the current system is facing, and will continue to face, escalating costs, diminishing speed and likelihood of error as volumes of paper ballots inevitably grow to unmanageable proportions. Adding to the pressure building on the current system is the growing volume and percentage of pre-poll and postal votes, many of which cannot be counted until well after election-day. Pre-poll ballots are now reaching 30 percent, pointing to an inexorable demand for more convenient voting options of the type that RV can offer. Moreover, with careful management and impartial approaches to system design, RV can also provide political parties with new opportunities to present policies for voter consideration.

The consortium is of the view that the widespread and deep penetration of the Internet into the lives of Australians merits serious consideration of RV for Federal Elections. Some will point to the recent denial of service (DOS) attacks on the Australian Bureau of Statistics for the 2016 census as an argument for not proceeding. In the view of the consortium, rather than being an argument for further delay, the event highlights the need for more concerted efforts in the area of Cyber Security when considering such systems, and the necessity of spending the requisite time and planning in the development and testing phases. In the end, the Census application was successful but the DOS attack could have been foreseen and easily countered.

Voter Registration/Authentication

A key requirement for a RV system is a reliable method for identifying voters remotely to ensure that only eligible voters are allowed to vote.

The consortium partners Edentiti and Auraya Systems provide unique expertise in this regard. The consortium is of the view that a biometric identifier is necessary and that a voice print is both the most unobtrusive and technically most accurate of all available biometrics. As part of the overall solution, a system to register voters would be provided, using Greenid and the Document Verification Service (DVS) to check various photographed documents as part of this process, and then capture a voice print – all of which would be done via the Internet in people's homes in a matter of minutes, well in advance of polling day. At the time of voting, each voter would be authenticated by comparing his/her voice against the stored voice print and a check would be made to see if they had already voted. After being cleared to vote, their electoral roll record would be updated accordingly. A demonstration of what such a procedure could look like is available for the JSCEM should it wish to take this opportunity.

Biometric identifiers have become an accepted tool in the identification processes required by both government and private sectors, ranging from border protection applications to banking and a myriad of others. Voice prints have become the most easily captured, unobtrusive and accurate biometric for remote authentication applications. Both the Australian Taxation Office and the NZ Department of Inland Revenue use voice prints for authentication of their clients via the Internet.

The consortium is of the view that a biometric registration/authentication subsystem should be introduced well in advance of the development of RV and, in the meantime, used in conjunction with the current manual voting system to identify voters, thus replacing the manual checking and ruling off of voters in the printed electoral roll. This would ensure that only those with a right to vote could do so, and that they voted only once.

An ancillary benefit is the ability to use voice print identification to allow citizens on the electoral roll to more easily amend their name and address details. Against the background of nearly 20% of all electors changing their address in any electoral cycle, considerable effort and cost is expended by the AEC on keeping the electoral roll as up to date as it can be. While the AEC has recently implemented a number of measures to make it easier for people to update their details via online transactions, a telephone based system supported by voice print would arguably be even more convenient for voters and less costly for government.

Phased Approach

The consortium recommends that a staged approach be adopted by government, with each phase subject to assessment and agreement before proceeding with the next. The phases are:

Phase 1 - Feasibility Study: in partnership with the private sector, the feasibility study would engage the relevant government agencies and be required to report to the JSCEM according to a terms of reference that would include factors such as security, auditability, ease of voting, screen-based ballot design, benefits and costs, impact on voting and integration with election management systems.

Phase 2 – Specification, design, development and testing of the Voter Registration/Authentication system, and deployment for capture of voice prints for use in the next Federal election, in conjunction with the existing voting processes.

Phase 3 – Specification, design, development and testing of the RV system.

Phase 4 - Targeted Deployment of RV: subject to the feasibility study, initial deployment could be targeted at low risk and small cohorts that face the greatest barriers to voting, such as blind low vision voters (BLV) and disabled voters.

Phase 5 - Enhanced Deployment of RV: subject to the successful conduct of a RV ballot for BLV and disabled voters, extend deployment to voters who are absent from the electorate, including for example defence force personnel on service overseas, postal and pre-poll voters and those who attend at Australian embassies and high commissions to vote.

During Phases 4 and 5, the existing attendance based voting system would continue to be available to the majority of electors. Of course, Phases 4 and 5 might be combined or the mix varied according to assessed risk.

Phase 6 - Full Deployment of RV: this phase would make RV generally available to the electorate but subject once again to the assessed risk and success of the earlier phases. At this point there would be significant potential to reduce both the number of election officials and polling places yielding major savings to the Government.

It is anticipated that this whole process of feasibility study, development and deployment of the Voter Registration/Authentication and RV systems will cover a number of electoral cycles. This allows the necessary time to solve the problems associated with Cyber Security and auditability of the system in parallel with the more straightforward parts of the application. The project timetable can stay somewhat fluid as far as its deployment stages are concerned, but only if work commences now, before current problems escalate to unmanageable proportions.

Dr Paul (Jock) Ritch

Co-Founder of the CPS Group of Companies