

Australian Government – Data Centre Strategy Industry Briefing 2 December 2010

Introduction

The Australian Government's Data Centre Strategy (the Strategy) is a long term program of work with a primary objective of avoiding future data centre costs. By taking coordinated action, government agencies can be more efficient and sustainable in their data centre operations.

The intention of this briefing is to provide an overview of the program including a summary of the drivers behind the initiative and an update on the nine projects that are underway at the current time. This will provide industry representatives with an idea of project timelines, expectations and upcoming opportunities.

Background

A review of ICT use by the Australian Government (the ICT Review) conducted by Sir Peter Gershon in 2008 recommended the development of a whole of government approach to data centre requirements over the next 10 to 15 years. This would replace the existing ad hoc arrangements and avoid \$1 billion of data centre costs over that time.

AGIMO developed the Strategy to satisfy this recommendation. A central challenge remains the diversity of arrangements that agencies currently have for their data centres. For example, an agency's data centre may be on their premises, might be purpose built or in converted office space, or it may be leased.

Government considered and accepted the recommendations of the Strategy, with the then Minister for Finance and Deregulation Lindsay Tanner announcing the Strategy at CeBIT in Sydney, on 22 March 2010. The Strategy is available from the department's website, www.finance.gov.au.

Many people incorrectly assume that every recommendation in the ICT Review is about cost cutting. The Strategy is about avoiding future costs. The main source of these future costs are electricity and data centre leasing. Other opportunities for costs avoidance include use of common services, such as backup and disaster recovery.

Key Recommendations of the Data Centre Strategy

The aim of the Strategy is to increase efficiency in obtaining and using data centres and to avoid \$1 billion in future data centre costs over the next 10 to 15 years. The method for achieving this objective is detailed through the following key recommendations:

1. Coordinated procurement for data centre facilities and migration services

Through a coordinated procurement framework, the Government will be able to reduce procurement costs and streamline contractual arrangements. At this time, a number of tenders are under evaluation, which for probity reasons will not be discussed further.

2. Standardised data centre infrastructure

The intent behind standard data centre infrastructure policy is to drive up the efficiency of data centre operations, particularly the efficient use of electricity, which is identified as a major future cost. The policy will also reduce the floor space required, hence the uncertainty about the space requirements.

This illustrates a key feature of the Strategy. While agencies remain in control of their ICT, and remain responsible for using their ICT to support their business outcomes, they are required to conform to the policy set out in the standardised data centre infrastructure policy.

3. Trigger points

It is anticipated that agencies will adopt the Strategy when they were about to make a major data centre investment. These 'trigger events' would include such events as lease expiry, major asset replacement, building moves, end of life of the data centre, or significant increase in data centre capacity.

This will overcome the diversity of the agencies' current arrangements, and is also likely to be the most efficient timing for the agencies. The Strategy should not impose a cost on the agencies, which they were not already planning to incur.

4. Mandatory for all FMA agencies

The Strategy is mandatory for FMA agencies and optional for CAC bodies. However, it is recognised that with the number of agencies involved, there may be cases where the Strategy can not satisfy all the requirements.

In such circumstances, the Expenditure Review Committee, a subcommittee of the Cabinet, will have the ability to approve exemptions based on the business case put forward by the agency. The conditions for an exemption are reasonably strict, and are taken from a whole of government perspective. So an agency could not, for example, apply to opt out on the grounds that it would cost them money. Instead, the agency would have to demonstrate that by opting out it would reduce the costs for all government agencies.

5. From Year 4 agencies that have adopted the strategy will fund the program

The Strategy is funded from the ICT business as usual reinvestment fund (ICT BAU) for its first three years of operation. Note that the Labor Government did not take back committed ICT BAU funds, only the amount that was unallocated in August 2010. However, from 2014, the agencies that have adopted the Strategy will pay a levy for the continuing program activities.

Strategy drivers unchanged

The Strategy drivers have not changed since its original publication and are fairly self explanatory. They include:

- Electricity becomes a key cost driver
- Limited market supply sufficient for immediate needs
- New data centres waiting on committed lessees
- Building a government data centre not timely
- Cost avoidance through agency data centre investments
- There is scope for collective action

Of particular importance is the issue of electricity, as electricity usage is the highest contributor in cost avoidance and is anticipated to be the single largest future cost for data centre operations.

The government's data centres generate an estimated 300,000 tonnes of carbon each year. The goal is to reduce this by at least 40,000 tonnes per year over the next five years. With that in mind, the Strategy requires agencies to measure and report annually on the electricity used by their data centres and their ICT infrastructure, regardless of where ICT equipment is located and whether it is insourced or outsourced.

Data Centre Strategy Program 2010 – 2025

The first five years of the Data Centre Strategy Program included the objectives:

1. **Aggregate whole of government demand and establish data centre facilities and services panels**

Meeting this objective will allow a reduction in agency procurement costs by providing a simplified procurement process via a whole of government data centre panel. It will also reduce future costs by leveraging the whole of government purchasing power through the coordinated procurement.

2. **Assist the first agencies to move**

There are about a dozen agencies that are planning a data centre move in the next year. For each agency, this is a rare and high risk project. However, considered as a whole, there is an opportunity for coordinated action, to produce more efficient data centre relocation projects. AGIMO is currently establishing a panel for migration services, to assist in these data centre moves. We also intend to transfer project knowledge between agencies.

3. **Define standards to ensure maximum efficiencies**

This objective involves defining the standards for data centre equipment and operations in order to achieve maximum efficiencies.

The Department of Climate Change and Energy Efficiency is working with the NSW Department of the Environment, Climate Change and Water to develop a National Australian Built Environment Rating System (NABERS) rating tool for data centres. It will provide a representative and comprehensive measure of energy efficiency in data centres.

It is anticipated that a preliminary version of this measurement tool will be available in 2011. As the tool becomes more robust through user testing and refinement it may be appropriate to replace or supplement Power Usage Effectiveness as a more informative measure of data centre energy efficiency.

4. **Work with smaller agencies to consolidate requirements**

In developing the Data Centre Strategy, many of the smaller agencies reported that data centres and related ICT systems were a major issue that affected the agency's ability to meet its business outcomes. While the issue has been identified, the requirements and the solution are not as clear. This objective will be met by the project we are calling Data Centre as a Service. This will be covered in more detail further on.

Australian Government – Data Centre Strategy

Industry Briefing - 2 December 2010

The following years

In the second five years it is anticipated that agencies will share solutions and technology to drive further cost avoidance. In the last five years of this strategy, agencies will adopt new opportunities for cost avoidance that arise from changes in technology, processes or policy.

Benefits realisation

The Program implements the Strategy by delivering capability and capacity that enables the Program benefits and the objective of avoiding \$1 billion in data centre costs to be returned over a 10 to 15 year period. The Program benefits realisation is based on Managing Successful Programs (MSP).

The most important sources of benefits realisation are increased efficiency in the use of electricity, and reduced data centre floor space and associated costs. These are closely followed by increased efficiency of data centre ICT assets and standardised ICT Infrastructure Architecture. In comparison, the whole of government procurement of data centre facilities and migration services will reduce agency procurement cost and future data centre costs, however its contribution to the overall benefits realisation will be insignificant.

Responsibilities

In this process, AGIMO will set out the guidelines as to how benefits are measured and reported.

Each participating agency will then be responsible for ensuring that the benefits are realised and reported in accordance with agreed Benefit Profiles. Through this process, agencies will report avoided costs, not savings, to AGIMO.

Note: avoided costs cannot be harvested by Finance. This means that Finance cannot take any savings that agencies make and agencies will not be including savings in their reports.

Australian Government – Data Centre Strategy

Industry Briefing - 2 December 2010

Data Centre Strategy Program Schedule

The Strategy goal is to avoid agencies' costs related to their data centre infrastructure and operations. The Strategy has two major themes, coordinated procurement and standardised infrastructure policy.

Coordinated procurement

As mentioned earlier, the tenders for the both the Data Centre Facilities Panel and the Migration Services Panel are currently under evaluation.

'Data Centre as a Service' can be described as a set of managed services for the smallest 50 Australian Government agencies. These agencies spend less than \$2 million per year on their ICT operations, and have common ICT infrastructure. The services will include file, print, desktop, internet access and disaster recovery, among others. Larger government agencies can also use these services if required.

The standardised infrastructure policy will be delivered through the following projects:

Project	Description	Timeline
Optimising Data Centre Use	Will underpin the operation of the three panels selected through the tender process. It will identify and provide policy guidance on data centre efficiency targets and range of techniques such as server consolidation, virtualisation, clustering which will assist agencies in achieving these targets.	Second Quarter 2011
Organisational and Cultural Change	To ensure ongoing performance measurement and monitoring requirements are met, an AGIMO team will take on the responsibility for the whole of government contract for the three panels. The team will also provide guidance to agencies on the use of the data centre panels and will monitor progress of benefits realisation of \$1 billion in cost avoidance.	Ongoing
Data Centre Demand Annual Contribution	AGIMO conducts a regular ICT Benchmarking Survey which provides valuable input into the demand schedule. This will be used to revisit the demand for data centre space. The benchmarking data includes details of the servers, storage, their utilisation and the data centre facilities in use.	Ongoing
Data Centre Electricity Supply	Contribute to the whole of government electricity sourcing arrangements to obtain a source of lower prices for electricity for data centres.	Ongoing
Feasibility Study for Government Owned Data Centre	Investigate the feasibility of a Government built and owned data centre. The Feasibility Report will be presented to the Government on feasible options and associated costs.	Second Quarter 2011
Five Year Review	A five year review of program benefits realisation plan. This project will review the status of completed 'enabling capability' projects and their contribution to the overall Program Benefits Plan. Annual reviews will be performed on completed projects and recommendations will be made for future scoping of program projects.	Fourth quarter 2015

Australian Government – Data Centre Strategy

Industry Briefing - 2 December 2010

With regard to Organisational and Cultural Change, once the panels are established the management of data centre panels will be taken up by the Data Centre Change Team (the Change Team) in AGIMO. Agencies will be working through this team to obtain their data centre facilities. While it is anticipated that some larger agencies will establish their own contracts and have sole occupancy, the norm is expected to be several agencies sharing a single facility.

It is worth noting that each participating agency is responsible for ensuring that the benefits are realised and reported in accordance with agreed benefits profiles. The Change Team will facilitate the benefits realisation process through the use of enabling capabilities produced by the Data Centre Strategy Program.

Data Centre Coordinated Procurement

The chart below provides a high level schedule for the Data Centre Coordinated Procurement projects, which include the Data Centre Facilities Procurement process, the Data Centre Migration Coordinated Procurement project and the Data Centre as a Service project.

Timelines for Data Centre Coordinated Procurement



Alternative text: The Data Centre Facilities Procurement process and the Data Centre Migration Coordinated Procurement project have both reached the evaluation part of the tender process, with closing dates for submissions in November 2010. The Data Centre as a Service Procurement will commence in 2011, with details provided below.

The third procurement, Data Centre as a Service, is tentatively planned for the second half of 2011. The project team is currently preparing the requirements specification. Following this, there will be a period of industry consultation. No solutions have been ruled in or out as yet.

AGIMO is still considering how we will conduct this consultation, whether via market survey, vendor presentation, or written expression of interest. In December 2010, the possible solutions include the usual in-sourcing, partial or full outsourcing, and of course, the recent arrival of cloud computing. It is anticipated that the industry consultation will be most interesting.

Australian Government – Data Centre Strategy

Industry Briefing - 2 December 2010

Regardless of how this is conducted, the notification will be sent from AusTender and be placed on the AGIMO blog. The key milestone for this project is a business case, to be presented to the Secretaries' ICT Governance Board. If, and only if this business case is successful will the tender be released.

If this procurement does go ahead, the same process and lessons learned from the Data Centre Coordinated Procurement will be adopted. This will include extending the AGIMO blog and procurement tab on the Finance website. It is anticipated that the draft Statement of Work will be placed on the AGIMO blog, to allow industry to provide feedback.

Optimising Data Centre Use

AGIMO will take a lead role in defining policy and targets for agencies, to improve the efficiency of data centre operations. AGIMO is developing a policy document and a guidance document for the agencies.

The Data Centre Optimisation Targets Policy and the guide will provide advice on how to achieve significant improvements that will drive down the operating cost of a data centre, reduce its emissions output and assist agencies in achieving the government's objectives. This will be done in consultation with the agencies, so as to set realistic and achievable targets, and so that agencies can share their experiences and lessons.

It is important to emphasise that AGIMO will **not** be selecting technology for agencies to use in meeting the targets. The policy will set targets only, and the agencies will decide how to meet these targets. Further, the Data Centre Guide is **not** intended to instruct agencies on how they should run their ICT infrastructure, nor will it go into detail on how to implement or operate any given approach. It is a collection of useful ideas, to assist those agencies that require assistance. For example, the guide will suggest server virtualisation and the key benefits, approaches and pitfalls, but it will not describe in detail how to set up or operate a virtualised environment.

Power Usage Effectiveness (PUE) targets

The purpose of the targets included in the policy is to reduce electricity consumption and through this avoid future costs. The initial targets focus on the data centre and the ICT in the data centre. Research indicates that the PUE, across all the Australian Government's data centres, is higher than 2.5. This means that for every watt of power driving the ICT, there are at least one and half watts used in the cooling and in distributing the power, among other things.

Following advice, including from companies represented at the Industry briefing on 2 December 2010, it is believed that this average PUE can be brought down to an average of 1.9. This is a central aim for the agencies, particularly those moving in to the facilities obtained through the data centre panel.

This is not the most aggressive target, and AGIMO is aware that some purpose built data centres are claiming PUE measures between 1.15 and 1.3. However, this target will be reviewed from time to time, with a view to reducing the PUE further. In the meantime, reaching the average of 1.9 will require significant work by the agencies, and achieve significant reductions in electricity consumption.

This is in line with the Australian Government ICT Sustainability Plan 2010-2015, which is coordinated by the Department of Sustainability, Environment, Water, Population and Communities.

Server and storage utilisation targets

The server and storage utilisation targets are intended to drive up the use of these assets. Again, the measures will be done on the whole of the installed base, and be time-bound and

achievable. For example, by July 2012, the agencies' Wintel systems must have an average usage of 30%.

Measurement and reporting

Measurement and reporting of energy use will be a key change for agencies when managing their data centres. At minimum, these measurements must allow for the measuring of energy from the ICT equipment from the distribution board, measurement of the supporting facilities such as air-conditioning, lighting, and Uninterruptable Power Supply losses. This will allow for a consistent approach to reporting the PUE.

Feasibility Study for a Government Owned Data Centre

An upcoming project will be a feasibility study into a Government built and owned data centre as a long term strategic option. This investigation will help determine whether there is value in adopting a Build Own Operate model for data centre management, or whether it is more cost effective to maintain a Lease - Develop – Operate model.

For this process, AGIMO anticipates engaging expert consultants from within the industry to help with this report. Further information will be available through AusTender at a later date.

Lessons learnt so far...

The Data Centre Strategy implementation is progressing well. And so far the lessons learnt from the program implementation are positive. These include the good dialogue between agencies and industry, which has been demonstrated by the response to the tender documentation draft statement of requirements through the AGIMO Procurement Blog. Further examples include the active participation of the Data Centre Cross Agency Working Group in reviewing requirements and tender evaluations, and the successful secondments of staff from other agencies to work on projects such as Optimising Data Centre Use and Data Centre as a Service.

The lessons drawn from these successes and experiences will continue to be used to achieve the cost avoidance goal.