

## Digital Media Monitoring for Parliament

Catherine Gilbert

The Electronic Media Monitoring Service (EMMS) allows Senators and Members to browse, search and view television and radio items on desktop PCs. News and current affairs items are recorded in Canberra by Parliamentary Library staff and published onto the EMMS web site for access by Senators and Members in Parliament House and their electorate offices.

The electronic media monitoring service is highly popular and this project has involved technology not applied in this way before. Using the new technology, media programs are digitally captured, encoded and archived for retrieval and playback by the Library's clients. This paper describes the project, the technology, standards employed, risks and problems and how these issues were overcome to provide an in-demand and high profile service for parliamentarians.

### **Project Background**

The Parliamentary Library has long been monitoring the development of digital media technology with the aim of providing improvements to what has always been a very heavily used and highly regarded media monitoring service. There were two major impediments to progress the project; one major problem has been the cost involved in implementing such technology and the second has been the high risk in adopting some of the changing technology. The service has been popular and highly regarded and the Library wanted to build on this high regard to improve the service and not jeopardise it in any way.

In 2002, a feasibility study was conducted to examine options and determine a way forward, resulting in the drafting of a project statement of work in February 2003. In mid-2003 a Request for Solution was issued to industry. A number of different types of solutions were examined and evaluated as part of this process. The result of this process was a contract in late 2003 for a Sydney-based company, Visionbytes, to provide a digital media monitoring solution for the Parliamentary Library.

This solution was gradually developed, tested and implemented during 2004, and was fully launched to the new 41<sup>st</sup> Parliament after the election.

### **Objectives**

The aims of the EMMS system were as follows:

- To provide Senators, Members and parliamentary committees with access to news and current affairs programs by way of an improved 24 x 7 client service

- To allow clients to search, locate and control replay of media items from an easy to use single user interface on their desktop PCs, whether in Parliament House or in the electorate offices.

These aims had the following benefits for both clients and the Library:

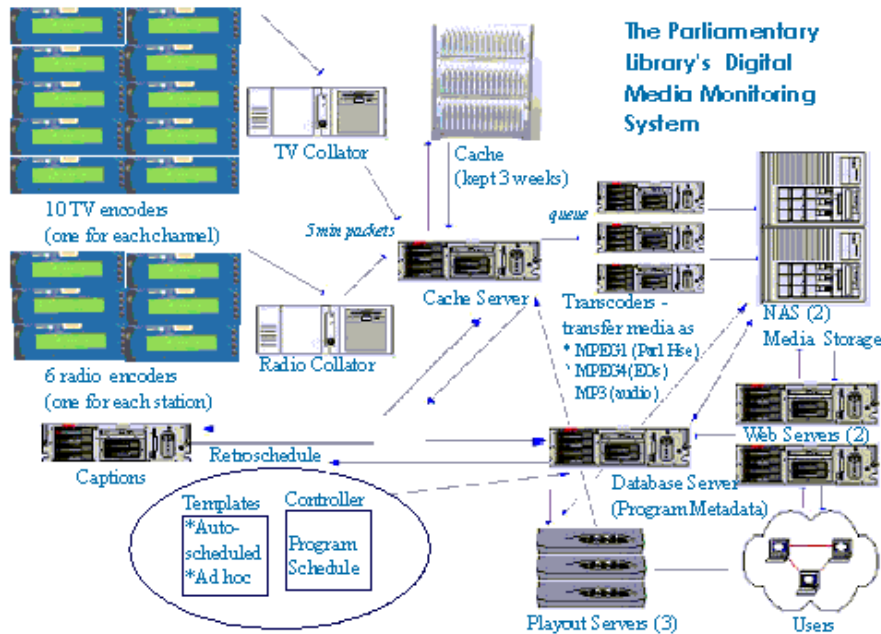
- Increasing client self sufficiency, especially for a 24 x 7 service
- Removing dependence on physical media
- Increasing the timely delivery of information (no need to wait for program to finish, let alone on courier delivery of physical media)
- Changing library staff focus from archiving to monitoring
- Reducing compilation, segmentation and duplication in delivery effort
- Automating some metadata capture and other routine tasks.

### **The technology**

The EMMS system is a digital system for capturing, annotating, segmenting, searching and archiving media content. It is a complete system, with automated encoding of media at capture. Media is captured twenty four hours a day, seven days a week, with first in-first out replacement of content. There is also a dynamic schedule of material that is automatically published to the web site and stored for longer periods, based on an archival policy.

Media items have associated metadata, some of which is captured automatically, with allowance for additional indexing that can be added later if required. Media programs can be segmented into new stories, or compiled into collections of stories and published to the web site. Closed captions are also captured and associated with the media programs so that transcripts of television items are also available for viewing and searching on the web site. At present, there are no captions available for capture for radio items.

Initially, the Library has provision for the capture of ten television stations and six radio stations simultaneously. This solution is scalable and additional channels can be added in the future. Capture is based on programs broadcast in Canberra, but there is provision in the system to ingest material captured elsewhere.



Television is recorded as MPEG1 at 2mbps. This is transcoded to MPEG4 at 64 kbps for delivery to the electorate offices, where there are bandwidth limitations. The end user interface can automatically detect whether high or low resolution is required for delivery. Viewing media is done in Windows Media 9. Radio content is delivered in MP3 format at 48 kbps.

Media items are encoded and sent to the collators. They are then stored in the cache server where they are held for around 2 weeks. In this way, any item that was not scheduled, or scheduled for a different time than it was actually broadcast, can be picked up from the cache and transferred to the more permanent storage (the NAS) in the same way as scheduled items are moved to the NAS and published on the web site. The NAS initial capacity was 8 terabytes. Recurring scheduled items are identified via templates, set up by library staff, who can add associated default metadata. A description of the content including this default metadata, along with its captions transcript (if available) is stored in a searchable database.

The web site is available to the Library's clients, who can browse or search for content, play back media and view the caption transcripts of programs, segments of programs or compilations of programs.

Playout servers allow media to be replayed on the house monitoring system within Parliament House, or copied to physical media for clients, if they request it.

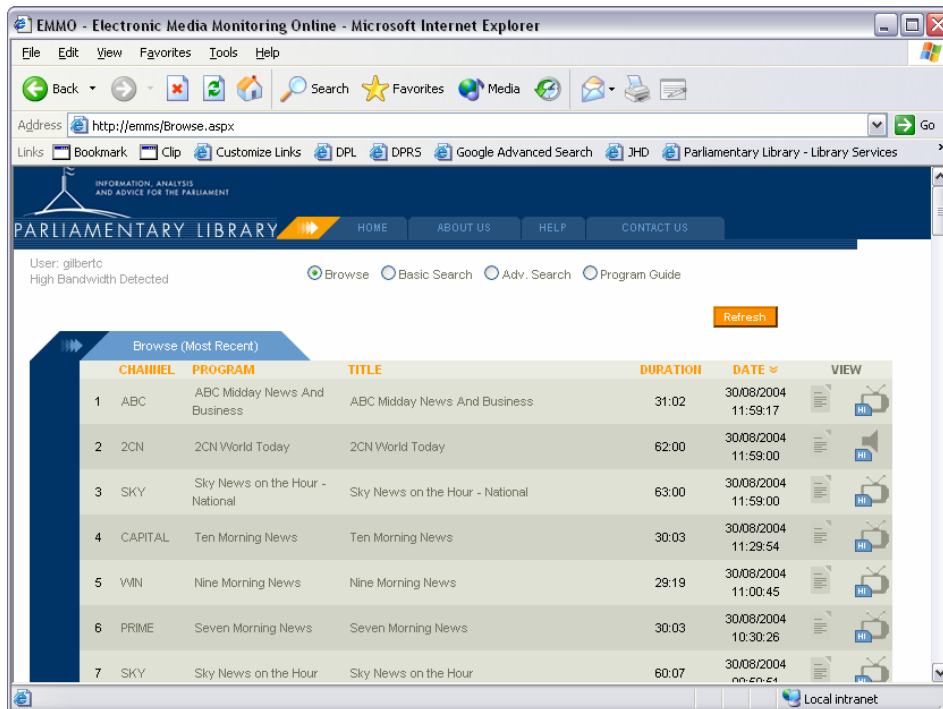
## Features

There are some unique features about the Visionbytes' solution that the Library was especially pleased to be able to adopt. These features include the following:

- The system functions are integrated (including scheduling, capture, segmentation/compilation, application of metadata and retrieval) in one total system. There are a number of media monitoring systems in place in Australia, but this is one total, integrated, digital solution.
- Not only are media items scheduled on a regular basis, but they can also be "retroscheduled", that is, taken from the 24 x 7 captured content in the cache server and published to the web site. That means, if programs are broadcast beyond their advertised times, or if a Member of Parliament makes an unscheduled appearance on a television or radio program, the Library can get the item from the cache and retroschedule it (that is, retrospectively schedule and publish it to the web site). This ensures the Library misses almost no content now.
- The Library also captures television closed captions from current affairs and news programs, stores them in the database with the program's metadata and publishes them on the web site with the associated program. It is thus possible to search and display the full text of captioned programs via the web site.
- The solution is scalable, that is, new channels or stations can be added reasonably easily.

### **What the Users See**

When designing the system, the library based the EMMS web screen design on its knowledge that parliamentarians usually want recent media items. The default or browse screen thus provides a list of the last 100 recorded TV and radio programs, with the most recent first. The Browse Screen can also be accessed at any time by selecting the Browse button towards the top of the screen. This list is updated throughout the day as more items are recorded.



Media items are available for viewing once a program is five minutes underway. For example, a Member of Parliament can start watching the day's 7.30 report at 7.35pm, from the start of the program. To start replaying a program, the parliamentarian only has to click on the television or radio icon. This will start replaying the item in Windows Media Player. In Parliament House, items will automatically replay at high resolution.

To search for a specific program, users select the Search button at the top of the screen. A row of search options will display. The resulting list of programs can be sorted according to any of the column headings – Channel, Program, Title, Duration (length of program) or Date – by clicking on the column heading.

**BASIC SEARCH**

Date:  Medium:  Channel:  Program Name:  Search Text:

Specific Date Range?

Search Captions (Program Text)?

Use "" for phrases, AND for all words, OR for any words, NOT to exclude words

There is also an advanced search screen so that specific metadata elements can be retrieved. This facility is designed more for use by Library staff than the parliamentarians, who cannot be expected to know the difference between reporter or contributor metadata elements, for example.

Users can bookmark specific items of interest but cannot save them to their hard disks. The reasons for this are two-fold – to prevent disk space being filled (as media files can be huge) and to assist in preventing copyright

breaches. Senators and Members can, however, request a copy of a program item on physical media (tape or DVD) from the Library for work in the course of their parliamentary duties.

From the outset of the project, the Library was aware that unless the client interface was easy to use and did not require training, the parliamentarians would not use the system and the project would simply not succeed. This point was stressed with the vendor throughout the project and a great deal of time spent on anticipating what clients would need.

## **Issues and challenges**

The EMMS project has been an incredibly complex and challenging project. A number of issues have arisen during the project which have had to be dealt with.

The Library is very aware of its unique position in regard to copyright law and the rights and responsibilities that this entails. Under the Copyright Act, the Library is permitted to copy material for parliamentarians in support of their parliamentary duties. This law has enabled EMMS to exist, and the Library is respectful of its position, limiting material contained in EMMS to news and current affairs items that parliamentarians use in support of their parliamentary duties and strictly limiting access to EMMS to Senators, Members and Library staff who support them. The Library also discourages saving items to hard disks, and a copyright notice appears on all items viewed.

Whilst the network inside Parliament House is more than sufficient for the delivery of media to parliamentarians' desktop PCs, the electorate offices around Australia have proven much more problematic. Considering that electorate offices can be quite remote and are located Australia-wide, this is quite an issue and one that the project team have been mindful of. A decision was made early on that delivery of media to electorate offices would need to be a much lower quality, and therefore use less bandwidth, than delivery to offices inside Parliament House. Even then, delivery of media to electorate offices had to be delayed whilst other issues relating to bandwidth outside this project were dealt with.

As the project contained a significant amount of risk in using technology in new ways, a strict, vigorous and lengthy testing process was essential. For example, without any obvious benchmarks to use, the project team had to make an educated guess on the impact of replaying large (in both file size and in numbers of files accessed simultaneously) on the parliamentary network at different delivery rates. Once an estimate was obtained, the project team then tested at length on a parliamentary isolated test network, before going onto the production network. The project team has also had to make educated guesses on which standards are most appropriate for building on in the future, balancing the risk of the cutting edge with using older, but more solid versions of standards. It is a difficult balancing act, with no absolute right or wrongs.

It has also proven challenging to implement an innovative solution in a conservative environment (Parliament House). This challenge is in terms of using new technology and in discovering new ways of doing things. Even little tasks can become massive dramas in implementing innovation in a conservative setting. The complex nature of the system has involved Library staff, information technology staff, broadcasting staff, expert users and the vendor working together to achieve a working (and supported) system.

The Library has still to look at the relationship of the EMMS system to other relevant legacy systems and to related database systems in Parliament House. There is a significant amount of work to do here in future stages of the EMMS project. For example, there is a large collection of analogue tapes generated prior to the implementation of EMMS that need to be managed in terms of the EMMS system. Metadata relating to these analogue tapes is stored in two different databases. It is hoped to integrate this metadata with EMMS.

### **Future expansion**

An exciting development the Library hopes it can implement soon is to align playback of media with the caption or transcript text attached to media items. In this way, items can be retrieved and played from a specific point in the text, and text can be viewed on the screen alongside the media, with the two fully synchronised.

As a high priority, the Library would like to implement increased confidence monitoring of EMMS system components and of the system as a whole. This has become essential, not only to allow remote administrators to administer EMMS at all hours (as EMMS is a 24 x 7 service) but also as the EMMS components are scattered widely throughout Parliament House, including in a basement computer room, in a broadcasting central equipment area and in the Library itself.

The Library hopes that transcripts and related material can be added to the database, as well as the closed caption material. This material would also be fully searchable and should enhance access to media items.

As a future project, the library would like to link EMMS to the parliamentary thesaurus and the names database. Integration with the Library's thesaurus and names database will allow for increased subject access and consistent presentation of names, and align EMMS with other Library information database systems.

The Library is also mindful of changes in technology and the impact this will inevitably have on EMMS and the media archive it contains. This will need constant monitoring to prevent obsolescence.

## **Conclusion**

The EMMU project has resulted in implementation of an innovative, highly complex and popular system, which has achieved its aims. In the first week of the 41<sup>st</sup> Parliament in November 2004, EMMS scored over 2,000 hits by its clients. This compares with an average of 400 requests per month with the previous analogue system. It is used at all hours and is being used at weekends as well as weekdays. Clients are able to use EMMS without specific training and feedback has been extremely positive.

The system has room to grow and develop further in the future. It is expected that EMMS will continue to develop and adapt over the following years.