AUS-e-STAGE NAVIGATING NETWORKS SERVICE

REPORT ON THE ALPHA 1 TESTING PHASE

Testing group invitees:

LIEF Grant stakeholders and associates:

Helen Trenos	Glen McGillivray	Shona Erskine
Nanette Hassall	Kim Durban	Camilla Ah Kin

Academic Researchers

Julie Holledge

Aus-e-Stage Taskforce:

Jonathan Bollen	Jenny Fewster	Liz Milford
Corey Wallis	Brad Williams	

Number of respondents: 8

Testing period: (1) October - December 2010 Person-to-Person Networks
(2) January – March 2011 Event-to-Event Networks

Summary of feedback requested:

(1) Person-to-Person Networks

The test interface for navigating artists' networks in AusStage is now online. The main page is http://beta.ausstage.edu.au/networks/.

The interface is called 'Protovis Trial'.

Look up a contributor's name or just enter a contributor id. Click view to load the network. Once you're viewing a network, double-clicking on a contributor will load their network. You can also play with the time-slider and browse facets.

You'll need an up-to-date browser, such as Safari 5.x, Firefox 3.6x or Google Chrome 6.x. You'll also need a reasonably speedy computer and some patience. I suggest you try artists with small networks first.

See how you go - I'll look forward to talking...

---

(2) Event-to-Event Networks

We are pleased to announce that the next component of the Aus-e-Stage Navigating Networks service is now ready for your viewing. The Event to Event interface is available via our website at http://beta.ausstage.edu.au/networks/network-ui-event.html.

Due to the complex nature of using live data this interface is only presented with an "example" data set (The Under Room) so at this point we are interested in gaining your feedback and comments on functionality and style.

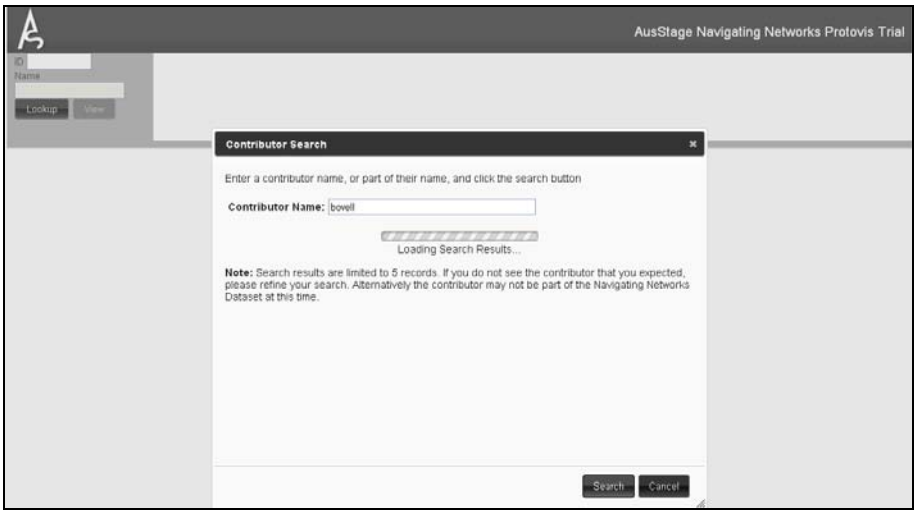
To use this please click on the view button and you will find the example network will open for you (note - ID, Event and Lookup do not yet function). Please have a play with hide/show contributor/event buttons to the left and the graphic to the right and let us know how this is looking.

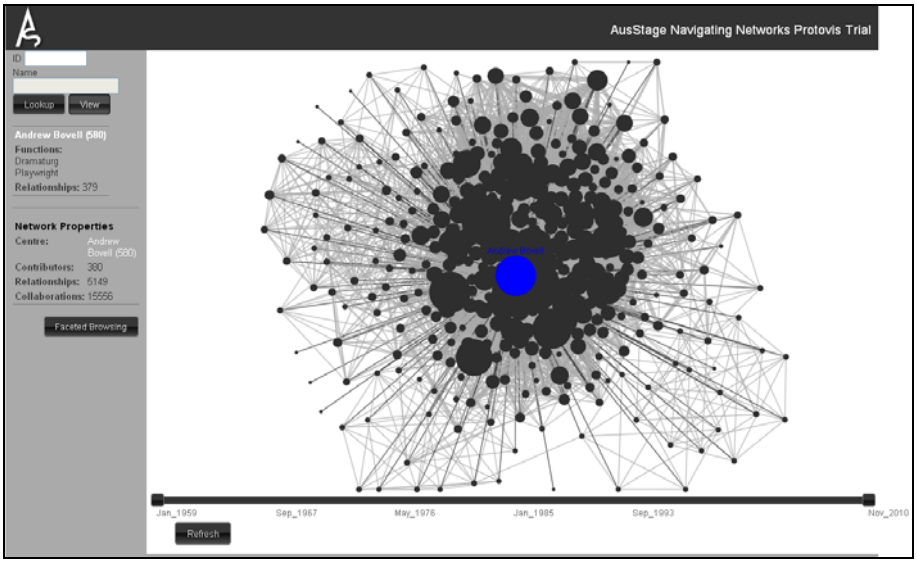
We look forward to receiving your feedback.

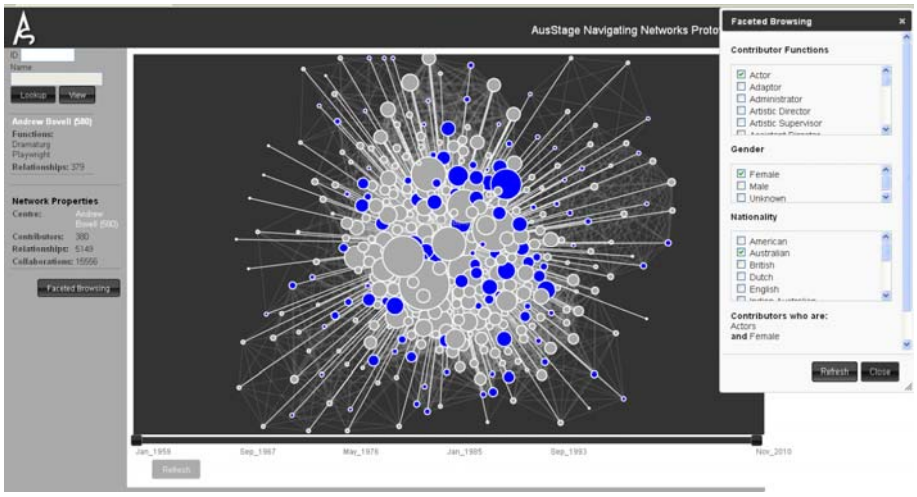
(1) Person-to-Person Networks

The Aus-e-Stage Navigating Networks test interface was released for Alpha 1 testing on 11 October, 2010. The first components in this Protovis "Person-to-Person" network trial release include a Contributor Search function, enabling look up via either a Contributor name or ID number, and a visualisation canvas. In addition, a time slider and basic faceted browsing functionality have also been included in this version, allowing the user to "play" and experiment with the search results a little further.

Search, network retrieval and faceted browsing screenshots at http://beta.ausstage.edu.au/networks/







Person-to-person feedback received during the Alpha 1 testing phase was concise and specific to researcher's network analysis needs, giving good direction to future needs and developments. Details are noted below under the following headings:

1. Contributor Search
2. Faceted Browsing and Time Slider
3. Network Speed
4. Future Desired Developments

1. Contributor Search

Glen spent quite some time searching and visualising networks in the Protovis trial. Whilst a little frustrated with the speed and the number of connections being displayed for larger contributors he had moderate success in visualising what he wanted. Glen suggests that the default search graphic should not display the whole network for the contributor but should, maybe, display a limited network based on, for example, collaborations that occurred 12 months from the day of the search. With this in place the user could then start to build the network via their filters (such as time, function etc). This will enable the user to change tack more easily and keep network searches de-cluttered.

Helen searched for *David George* by typing in *George*. This yielded contributors with both first and last name of *George* and added a degree of complexity that was not entirely desirable. To manage this type of instance Helen suggests that more than five results would be preferred with the option to scroll through these (sorted by surname first).

Shona suggested that a button to switch collaborator names on and off would perhaps be useful rather than trying to mouse over the nodes to see the names (which is very slow on some older computers).

2. Faceted Browsing and Time Slider

As suggested by **Shona** in the planning phase the ability to view people's networks in terms of function is important. The present faceted browsing facility allows option to filter results not only by function but by gender and nationality.

In addition to the current faceted browsing options **Helen** would like to see a company/organisation selection added. She is also keen to see the related AusStage information for the various contributor associated events shown with a link on the left side of the graphic.

Glen suggests that when the faceted search is used the contributors not involved in this network be visually removed in order to simplify the visualisation. He also recommends that a negative browse function may be useful, that is to specify certain contributors to be filtered out (rather than in).

The matter of duplicate filtering (particularly for tours) was also raised by Glen and he writes:

> *Is it possible to filter out duplications that occur when someone tours a show and it is listed in AusStage as multiple events? This can create a graphic distortion because it throws certain collaborations into prominence simply due to the number of discrete events generated by the touring show. The data I want to get at is the collaborations between people who have worked across a number of <u>different</u> shows together.*

Camilla liked the ability to adjust the network graphic using the Timeslider and noted that this effectively allows another level of filtering to occur and is an important component to her desired network visualisations.

Network Speed issues

Significant network speed issues have been noted to date. From a users perspective this is frustrating and off-putting and may lead the user to think they are not using the service correctly. As noted by **Shona**, it would be a good idea to provide a message to users when a selected network is going to be too large to quickly show. An "optimal size" vs "time to display" calculation would be required to achieve this.

Further to this **Corey** has discussed the hardware matter in detail with Paul Gardner-Stephen to work out what is causing the dramatic difference in speed of the RDF datastore between his workstation and the AusStage server.

A summary of Corey's comments on this are as follows:

> *The AusStage server uses a computing architecture that provides 128 hardware threads. This effectively means the server can undertake 128 tasks at once. Such an architecture is very useful in servers that manage a website as it means it can service a large number of concurrent connections simultaneously. The downside to this approach is that any single thread doesn't run particularly quickly.*
>
> *This is having an impact on the RDF datastore as creating and querying the datastore are linear operations. For example the RDF datastore has a single write / multi read (SWMR) policy which means that a number of threads can read from the datastore but only one can write to it at any one time.*
>
> *This, combined with the sheer size of the dataset accounts for the speed difference. This issue, as we have seen, has an impact on other linear tasks as well. For example the long execution times for queries that build datasets for the purposes of building graph data. It will also have an impact on other linear tasks such as the batch export of data into the RDF format.*
>
> *As we're currently in the process of looking into options for an additional server I believe we need to change the type of server that we're looking for. Rather than looking for a server using the same architecture as the one we have now, we need to source one that uses the Sun x86 architecture. This architecture may provide, as an example, only 4 hardware threads. The main difference is that each thread executes very quickly.*
>
> *Therefore to fully support the goals of the Networks Service, and the periodic export of Network Graph Data, I believe we should be looking for:*
>
> *- 2 additional hard drives which will increase the capacity of the existing server*
> *- a Sun x86 based server that has 4 hard disks in two mirrored arrays*

3. Future Desired Developments

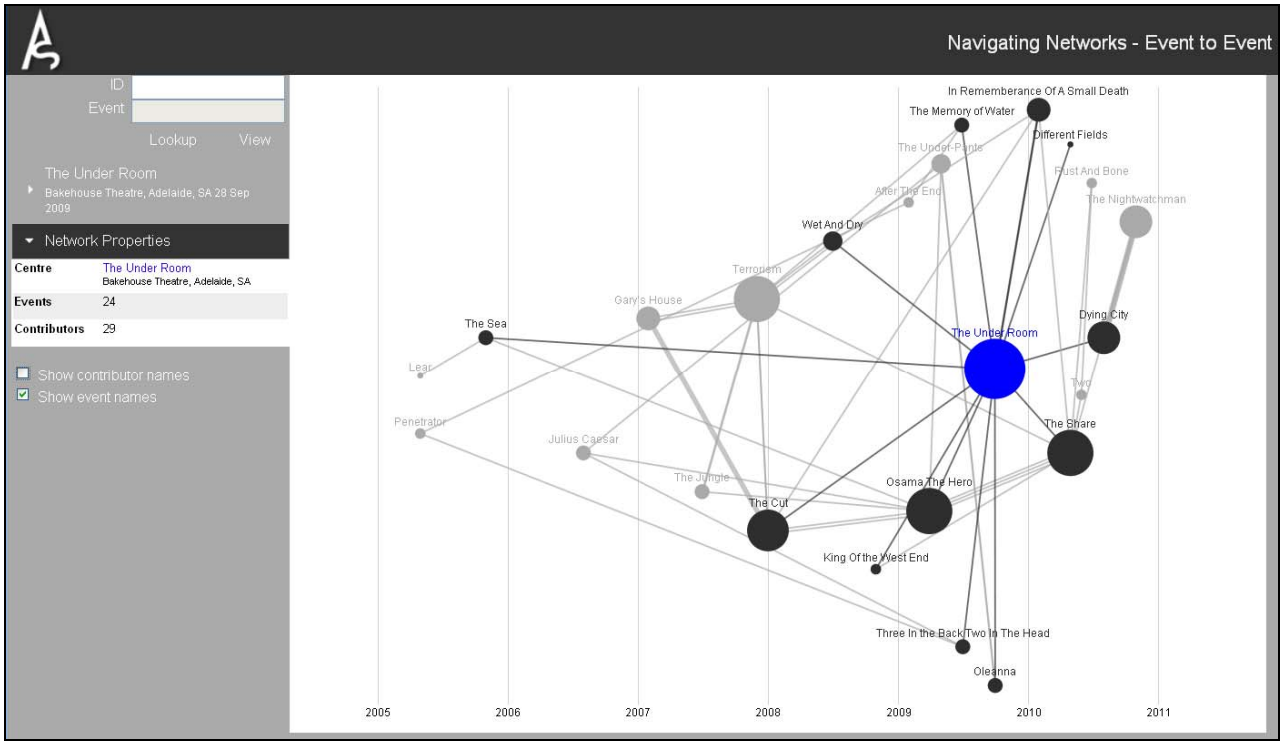
Jonathan, **Brad** and **Glen** all provided comments towards the next phase of development for Event-to-Event networks. As these networks will be smaller than the contributor ones there will be more scope to take these to second and third degree networks which will offer users more opportunity to delve deep into the data and a range of visualisations. Glen is particularly keen to be able to filter by both contributor and their linked events and collaborations.

Camilla noted that she would like to combine two person-to-person networks on the one graphic (Camilla Ah Kin and Camilla Sobb – same person) but at this stage this is not possible. This may be something for future consideration and development.

(2) Event-to-Event Networks

The second part of the Alpha 1 testing phase includes the testing and evaluation of the Event-to-Event Networks. This network is available at http://beta.ausstage.edu.au/networks/network-ui-event.html or via the Aus-e-Stage website www.beta.ausstage.edu.au. Building on experience gained in creation of the Person-to-Person Network the Event-to-Event network was designed in a similar style but with a relatively simple data set. This reduction in data intricacy gives future scope for this network to be tuned down to a further degree with at least second (and maybe third) degree network visualisations possible. However, due to the complex nature of using current live data the Event to Event interface for testing was only presented with an "example" data set for a specific central event, *The Under Room*. Testing participants were asked to specifically consider functionality and style in their review of this.

The screenshot below shows the Event to Event Networks static interface for The Under Room.



To gather direct feedback on the Event to Event Network example interface a videoconference demonstration meeting was set up with the Navigating Network cluster group on 1 March, 2011. The notes from this meeting are inserted below.

Jonathan gave a brief outline of the Event to Event network interface with mention to:

- timeline (zoom in to see year, month, date and even time),
- contributor pathway lines (click on lines to see contributor pathways, note contributors may have varied functions from actors and designers to playwrights etc),
- dots (size of the dots is a reflection on the number of lines coming into the dots), and
- other attributes (eg hover).

Jonathan stated that some of the matters/issues discussed by the group in testing relate to the fact that this model only uses a static data set which does not give a real sense of context and is intended as an example only. As a select network it is really intended to just show the cast come from and then where they went in a relatively simple format. By doing this it effectively puts all on an equal sort of footing as such as the central Event is the intended focus (not the Contributors).

Glen provided feedback as tabled below:

1. As a network graphic, I really like the openness of it – all the events or contributors, if these are individually selected, are really clear. Not sure if anything can be done to improve how contributors' name tags pile on top of each other.

2. The function whereby you can click on an event or a contributor and it only highlights that particular network is very helpful. Also, the menu that appears to the left that has the contributor's role is also good
3. Liked how I could, for example, simply by clicking on a connecting line, see how *Penetrator* connected to *The Under Room* (through the actor Nat Davidson). In fact, being able to see who is the person that connects one event to the next is great!
4. Could we add a function to it that enabled us to browse by contributor's role?

Glen also suggested that direct line and node selection options that could allow the hiding/deletion of contributors/events would also be useful to remove non relevant "clutter" in some instances. Likewise, facetted browsing (as in the Contributor network) would be good.

Helen noted and suggested:

- that she also thinks the "piling up" of names may be problematic at times.
    - Jonathan explained that this may be at least partially alleviated by using the zoom function and also the drag option to move the dots around on the graphic.
- a key is needed to explain the lines and dots a little more clearly
- that the selected colours do not always help in the differentiation process (especially between the dark and light grey in the lines)
    - Jonathan says lines can be made thicker or thinner and this may help the colour issue.
- vertical date lines are a bit confusing and maybe these could be varied to make it easier to see.
    - Jonathan suggested the timeline lines could be optional with a tick box on and off implemented and the selected node lines could be made thicker to distinguish more.
- Asked how multi functions (eg an actor in one, a designer in another show) will be shown?
    - Jonathan said that at this point if someone has worked in 2 roles then there will be only one line for the person connecting them to events and in the current format function is associated with the dot and not the line. The key function for each person is listed via the AusStage link to left. However, this is a good suggestion for future inclusion and for each event the function of the person could be listed against each event in the left hand menu.

Independent written feedback received from Camilla includes mention that it is "easy to see how the contributors inter relate even if you don't know how events are linked". She also reiterates several of the factors discussed by Glen and Helen in the notes above.

Shona said:

- that she hadn't really considered use of the event to event networks for her work initially but has now found that this may be useful – for example in the identification of pathways which lead on to questions of style, clustering and trends, the influence of particular contributors and the significance of various key collaborations.
- colour is a great way to index thought processes and the use of colour on this network would enhance this. For example, use of blue and green and the ability to "build" connections (hold and click) on to each other would be very useful, perhaps with tick boxes to clear and start over again.
    - Jonathan was in favour of this idea and thought it may be possible with other networks as well. He thought that perhaps users could choose their preferred colours from a pop up palette.
- would like to be able to see both contributor and event to event networks on the same screen – to enable comparisons and easy flicking back and forth.

Jonathan mentioned that in the future the selection of multiple people and events might provide solutions to some of the questions posed but this has not yet been developed. There are also plans to provide a list on the contributor interface with a link to the various events that are the common factor between them.